BEHRING SEA ARBITRATION.

SUPPLEMENTARY REPORT

OF THE

BRITISH BEHRING SEA COMMISSIONERS,

JANUARY 31, 1893.

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SUPPLEMENTARY REPORT

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BRITISH BEHRING SEA COMMISSIONERS,

JANUARY 31, 1893.

To the Right Honourable the Earl of Rosebery, K.G.,
Secretary of State for Foreign Affairs.

My Lord,

WE have the honour, in response to the request which has been addressed to us, to submit the following observations on some additional points which come within the scope of the work of the Joint Commission instituted under Article IX of the Treaty of the 29th February, 1892, for the purpose of investigating the questions connected with seal life in Behring Sea.

This Report may be considered as supplementary to our Several Report of the 21st June, 1892. Our remarks will be principally confined to an examination, on the lines adopted in that Report, of the new facts which have been ascertained in connection with investigations made in 1892, in continuation of those of 1891. At the time of completing our original Report, it became manifest that no meeting of the Tribunal of Arbitration could occur till after the sealing season of 1892, and it followed that, in order to place the fullest and latest details before the Arbitrators, it was necessary to continue in some way the investigations already carried out by ourselves.

The attention of your Lordship's predecessor was directed to this matter in a letter from ourselves, dated the 8th March, 1892. Her Majesty's Government at once acted upon the suggestion thus made.

Under the arrangements made in connection with the *modus vivendi* of 1892, Mr. J. M. Macoun, who had accompanied us in 1891, was appointed an Agent for the British Government, and in that capacity was granted by the United States' Government full permission to make observations on the Pribyloff Islands. The greater part of the sealing season was spent by him either upon these islands or in cruizing in different parts of Behring Sea on one or other of Her Majesty's vessels then engaged in enforcing the *modus vivendi*. Observations were thus carried on by Mr. Macoun in accordance with a general scheme suggested by ourselves. His Report upon these observations is contained in the Appendix to the British Counter-Case, and we have pleasure in recording here the diligent and efficient manner in which Mr. Macoun carried out the duties devolving upon him.

Mr. Macoun's Report forms the basis of many of the remarks made on succeeding pages; but, in addition, a considerable mass of evidence has also since been obtained from sealers and others, which affords many facts bearing upon the general questions of seal life, as well as upon those of the industry of pelagic sealing In the endeavour to collect evidence upon these subjects much care has been expended, and as far as possible all sealers of experience have been consulted, or requested to state their views and observations, while further information of value has been secured in England. The facts thus obtained are also alluded to or discussed in this Report, in so far as it seems at the present time of interest or utility to do so.

We do not in this Report deal with the statements contained in the United States' Case, or with the evidence appended to that Case. These have been discussed in the

Counter-Case presented on behalf of Great Britain. But we may note that we have carefully examined that Case, and its appended evidence, and that we make no statements in this Report which anything therein brought forward leads us to think doubtful or incorrect.

Although no general criticism of the Case presented on the part of the United States, or of the documents appended thereto, will thus be entered into in this Supplementary Report, it appears necessary to make two exceptions to this rule, in regard to subjects on which we feel called to make some remarks in our capacity as Her Majesty's Behring Sea Commissioners:—The first of these relates to the proceedings during the meetings of the Joint Commission at Washington; the second, to certain maps bearing directly on matters connected with seal life, which require consideration in the light of local knowledge which we have been able to obtain during our investigations in 1891.

The first of these subjects may be conveniently dealt with at once; the second will be noticed later on, in connection with our present review of the bearings of recent investigations on the subject of seal life in the North Pacific, on later pages.

The Conferences of the Joint Commission.

Some part of the United States' Commissioners' Report, is devoted to an account of occurrences at the conferences of the Joint Commission, held in Washington in February and March 1892.*

As the remarks there made are in many respects inconsistent with our record of the meetings and recollection of the facts, it will be necessary, for a proper understanding of what occurred, to supplement them by a short statement of (*a*) the events preliminary to the conferences, and (*b*) of what occurred at the conferences themselves.

(*a.*) The statement is made by the United States' Commissioners that, on the 1st October, 1891, they returned to Washington, "*ready at any time to take up the discussion.*"†

Nothing whatever is, however, said as to the long delay on the part of the United States' Government in commissioning their representatives. Our Commission from Her Majesty the Queen was dated the 13th June, 1891, and when the United States' Commissioners joined us at the Pribyloff Islands on the 28th July, 1891, we promptly explained to them the terms of our Commission. In response, they informed us that they had not yet received any formal Commission from their President or Government, and that they were not, therefore, empowered to undertake any formal discussion with us on the subject-matter of our inquiry; but they added, that they hoped at some future date to meet us for that purpose in Washington or elsewhere, their purpose in the meantime being to acquire for themselves such local knowledge as would enable them the better to understand the large quantity of documentary evidence respecting seal life in the possession of the United States' Government. Regarding Professor Mendenhall and Dr. Merriam, however, as Commissioners-designate, we made with them visits to the rookeries, and conducted such joint inquiries and investigations as were possible during the brief period for which they were enabled to remain in Behring Sea. They left the Pribyloff Islands on the 10th August on the United States' Fishery Commission steamer "Albatross," bound homewards.‡ We ourselves, after their departure, visited the various other portions of Behring Sea, including the islands to the north, the Aleutian Islands, and the Commander group, and we revisited the Pribyloff Islands towards the latter part of August, and again towards the latter part of September, before the fur-seals had begun to leave the islands for their winter home in the south.

It is further to be noted, that the United States' Commissioners, in virtue of the letter of instructions to them to proceed to the Pribyloff Islands, passages from which are given in their Report, were specifically forbidden to enter into any discussion relating to measures of preservation involving Regulations, and that, as will be seen, their Commission to enter upon such discussions did not issue before the 4th February following. Thus, the meaning of the statement in their Report,§ that they were ready

* United States' Case, pp. 314–319.

† Ibid., p. 314.

‡ The whole stay of the United States' Commissioners on the Pribyloff Islands thus consisted of a single period of but twelve or fourteen days. This is not ascertained by their Report, but may be verified by reference to Captain Tanner's affidavit. United States' Case, Appendix, vol. ii, p. 373.

§ United States' Case, p. 314.

on the 1st October to enter upon such discussion with the British Commissioners, is not exactly apparent.

In order to afford an accurate understanding of the situation, it should be added that the British Commissioners had reported themselves, early in October, to their Government, as ready and waiting to commence the joint conferences. It is also to be noted that, failing to obtain any satisfactory assurances from the United States' Commissioners, one of the British Commissioners proceeded to Washington early in November, and there personally explained to the President, the Secretary of State (Mr. Blaine), and the United States' Commissioners the entire readiness of himself and his colleague to at once commence the joint conferences.

Other negotiations being in progress, it was not until the 2nd January, 1892, that the United States' Secretary of State informed the British Minister at Washington that he did not object to the meeting of the Joint Commission so soon "as the other public duties of the American Commissioners would permit."*

But on the 4th January, 1892,† the British Minister was informed by Mr. Blaine that the President objected to the meeting of the Joint Commission until Her Majesty's Government and the Government of the United States had definitely settled the details of the Arbitration Agreement.

On the 13th January, Sir J. Pauncefote telegraphed that the United States' Government had expressed their desire that the Joint Commission should sit at once.‡ To this the British Government promptly agreed. As no definite notification was, however, received from Washington, the British Commissioners telegraphed from Ottawa on the 26th January, asking by what date the United States' Commissioners would be appointed, and whether it would be convenient for them to arrive at Washington on the 30th, so as to be ready to commence formal work on the 1st February.

The reply was that the Secretary of State agreed that the Joint Commission should meet on the 1st February. The British Commissioners duly arrived in Washington on the 31st January, and on the 1st February were introduced to the Secretary of State, and explained that they were ready to begin their work at once.§

The United States' Commissioners, however, did not receive their Commission until the 4th February, and on the 5th February the British Commissioners received a letter from the Secretary of State announcing that the Joint Commission could not meet formally until the Agreement for Arbitration was signed.

The foregoing observations will suffice to explain the true character of the preliminary negotiations. But the Report of the United States' Commissioners next proceeds to give an account of the nature of the proceedings of the joint conferences, which were twenty-seven in number, and continued from the 8th February to the 4th March.

On the account thus given, we feel it to be our duty to make the following comments, with a view to placing an adequate account of what actually occurred before Her Majesty's Government.

We had understood from the first, that secrecy was to be rigidly observed as to what transpired at these meetings, especially for the purpose mentioned by the United States' Commissioners in their Report,‖ that of securing full and free personal discussion of the question in hand, not hampered or restricted by other considerations. But as the United States' Commissioners have thought proper in their Several Report to give their version of what occurred during the conferences,¶ and have, in addition, attributed opinions to ourselves, we have every desire that the facts of the case should be fully made known.

It was agreed at the ninth conference of the Joint Commissioners "that in our Several Reports no reference shall be made to persons, as relating to views or opinions expressed by members of the Commission during the conferences, and in these Reports no opinions shall be attributed to either or any of the members of the Commission."**

The United States' Commissioners paraphrase this Minute in their letter of the 4th March, which we quote below, in the following terms, relating to the conferences: "*in which it was expressly agreed that neither party should attempt to express the views of the other.*"

* Telegram, Sir J. Pauncefote to the Marquis of Salisbury, January 2, 1892. (British Case, Appendix, vol. iii, "United States No. 3 (1892)," p. 136.)

† Telegram, Sir J. Pauncefote, January 4, 1892. (Ibid., p. 137.)

‡ Telegram, Sir J. Pauncefote, January 13, 1892. (Ibid., p. 137.)

§ Despatch, British Commissioners to the Marquis of Salisbury, February 1, 1892. (Ibid., p. 140.)

‖ United States' Case, p. 315. ¶ Ibid., pp. 316–312. ** Ibid., p. 315.

The very limited character of the Joint Report may now, under the circumstances which have arisen in consequence of the statements of the United States' Commissioners, be further explained. We were throughout anxious to include, if possible, some definite measures for the protection of the fur-seal, upon which mutual agreement could be arrived at, or at least to formulate the principles upon which such Regulations might be based, with the purpose of making the Joint Report of definite value to the Arbitrators, as originally contemplated in the Treaty.

We were not prepared to find, however, toward the conclusion of the conferences, that the United States' Commissioners were not only opposed to placing in our Joint Report any reference to the matters upon which a diversity of opinion had developed itself during the meetings and discussions, but that they further wholly declined to the preparation of any Joint Minutes setting out the subjects discussed at the several meetings. We ventured to point out that such Minutes would be expected, and were entirely in accordance with usage on such occasions, but were met with the statement that they were unusual and unnecessary. A difference of opinion so fundamental in regard to fact, precluded further discussion of the subject; but before concluding the meetings and signing the Joint Report, we addressed a letter to the United States' Commissioners, which, with their reply thereto, was sent under cover (6th March) to Her Majesty's Government.

Having in view the attitude assumed by the United States' Commissioners in respect to the entire secrecy of the joint meetings of the Commissioners, and the expressions made use of in their letter of the 4th March, 1892, it is not without surprise that we observe in their Report annexed to the Case of the United States a sketch of the proceedings during these meetings,* drawn up from their own point of view, which, as it appears to us, cannot be so satisfactory in any aspect as would have been a series of Joint Minutes, such as those proposed by us.

The publication of that account of the meetings, however, renders it undesirable that the letters exchanged should any longer be kept back, while the assertions made in the account referred to, together with those in the letter of the 4th March, may, with equal propriety, be criticized from our point of view.

With a view to carry out, if in any way possible, the evident object of the Joint Commission and the conferences connected therewith, before the conclusion of these conferences we addressed the following letter to the United States' Commissioners, suggesting that if the Report could not be amplified, some explanation should be furnished as to the points of difference which had arisen :—

The British Behring Sea Commissioners to the Commissioners of the United States.

"Gentlemen, "*Arlington Hotel, Washington, March* 2, 1892.

"Before we finally sign the Joint Report as it stands, we wish to take the opportunity of expressing our earnest desire, in accordance with the opinion generally acquiesced in at our meeting yesterday, that, if by any means possible, the present obstacles may be removed, and we may continue the joint consideration of measures necessary for the preservation of the fur-seal, which has throughout appeared to us to be the most important matter to be dealt with in the Joint Report.

"2. The main obstacle seems to us to be that, while you wish to consider first of all the efficacy and degree of stringency of each separate measure, we desire to commence by the definition of some scheme of measures which shall include, in proper proportion, the control of every known method of taking seals, and the effective limitation of the numbers so taken.

"3. We have more than once stated that a scheme of measures can be formulated for discussion only on the equal basis that proportionate measures are necessary both on shore and at sea, a principle already specifically adopted, although without prejudice, by both Governments in arranging the terms of the *modus vivendi* of 1891, and a principle which must necessarily form the basis of any remedy which is in accordance with the scientific facts of seal life.

"4. Moreover, we believe it to be due to this cause alone that we have been prevented from effectively dealing, as we all desired, with the mass of facts relating to seal life in our possession, and resulting from the investigations made in 1891.

"5. We are in this difficulty :—

"Under the terms of the Agreement for a Joint Commission, and under those of the respective Commissions, and more specifically under the instructions which we received

* United States' Case, pp. 3 7, 318.

from our own Government (a copy of which has been communicated to you), it is our clear duty to make a Joint Report upon all facts and upon all measures, so far as we may be able to agree. We feel, therefore, in duty bound to communicate to our Government the reasons for which we are unable to carry out this portion of the Agreement come to between the two Governments.

"6. In this connection, as you appear to be definitely opposed to appending to our Joint Report any account of the subjects discussed at our lengthy and interesting conferences, we venture to hope that it may be in conformity with your views if we exchange Memoranda of the various propositions we would now support, to which replies might be given if deemed expedient, it being understood that such exchange of opinions would form the substance of despatches relating to the conferences to our respective Governments, and might by them, if they so desire, be eventually placed before the Arbitrators.

"7. While it is obvious that our respective views and differences would be apparent on a comparison of our several Reports, it appears to us to be clear that we might better fulfil the prescribed purposes of the Joint Commission, particularly in respect to its character as an aid to the Arbitrators, in the manner above suggested, rather than by leaving the various subjects on which agreement or divergence of opinion may be arrived at to be gathered as inferences from these several Reports.

"8. Moreover, we have reason to hope that such clear exchange of views might yet result in removing the obstacles to which we have already referred, and opening the way for the addition to our brief Joint Report of some clauses dealing with measures or defining the more important practicable principles which recommend themselves to us under this head.

"As has already been indicated, it is our intention in this letter to explain our distinct views of the circumstances that have now arisen, and which we are bound to communicate to our Government, and we shall be much obliged if you will favour us with a reply which we have your permission to communicate at the same time.

"We have, &c.

(Signed) "GEORGE BADEN-POWELL.
"GEORGE M. DAWSON."

To the above letter the following reply was received:—

The United States' Behring Sea Commissioners to the British Commissioners.

"Gentlemen, "*Washington, D.C., March* 4, 1892.

"In acknowledging the receipt of your letter of the 2nd March, we must first repeat what we have often declared during the progress of the conference between us, that from the very first day our understanding has been that all discussions, all suggestions, remarks, proposals, in fact, all of the proceedings of the conference, were confidential in their nature, and that nothing relating thereto should be formally or officially, directly or indirectly, submitted to our respective Governments, excepting only the Joint Report, when it should be prepared, and our several Reports, in which it was expressly agreed that neither party should attempt to express the views of the other.

"Only under such conditions was it possible to indulge in that entire freedom of discussion which permitted the consideration of a wide variety of proposals; the tentative introduction of plans for the purpose of determining the effect of their fuller development, or that general elasticity in methods of treatment which is so necessary to an exhaustive study of a question so complex and, it may be said, so new, as that with which we have been engaged.

"Holding this view of our mutual personal relations and obligations in a conference from which even our Secretaries, regularly appointed and pledged to secrecy, were continually excluded, it is difficult to express the astonishment with which we read your formal announcement that now, just as we are on the eve of adjournment, the final draft of the Joint Report having been approved for signature, you feel "bound to communicate to our [your] Government" matters relating to the proceedings of the conference, not found in the Joint Report, and of which you can have no knowledge except through and by reason of the free and unrestrained discussion and conversation which the confidential agreement referred to permitted and encouraged.

"Without attempting to understand the influences to which such an unexpected turn of affairs may be due, we desire to place upon record the belief that our own Government would never make such a demand of its Commissioners, who were selected as independent Agents, who had not already committed themselves upon any of the questions at issue,

and who were restricted by no extraneous considerations, national, international, or diplomatic, in their investigation of the subject or in their consideration of a Joint Report.

"Since you have gone so far in your letter as to refer to views which you attribute to us, and to obstacles which seem to have stood in the way of our reaching a more satisfactory conclusion, we deem it desirable to place upon record a few simple facts which cannot, in our judgment, be controverted.

"We were first to offer a plan for the settlement of the whole question; at later stages second and third propositions were submitted by us. Any one of these was perfectly clear in meaning, entirely practicable, and could have been put in operation immediately. Neither seemed to receive the slightest approval from you.

"You submitted a proposal which was so general in its terms as to convey no definite meaning to us. Day after day we strove to get some knowledge of the real intent of your proposed remedy, and of the results which would follow its adoption. In the pursuit of something tangible, we tentatively, and for the sake of argument, agreed to, or assumed, certain hypothetical propositions which we conceived might aid in developing the details of your scheme, which, after all our efforts, never presented itself in any other form than that of a vague and uncertain generalization.

"Reluctantly abandoning further attempts to secure from you the suggestion of a measure for the protection of seal life which was at once capable of interpretation and application, we formulated with you the propositions upon which we were agreed as a part of our Joint Report, and a week ago this Report was practically ready for signature.

"Since then our sessions have been spent in bringing about unimportant verbal alterations in this draft, resulting, however, in its reduction to a minimum of importance and value. On several occasions we have left the conference-room in the belief that the signing of the Joint Report would take place on the following day, only to find when we again met, and often, indeed, before, that some further change must be made, or to meet with some new suggestion which would result in getting into the Report, or in some way attached to it, some of the proceedings of the conference which, as we continually declared, were covered and protected by the confidential agreement referred to above.

"As it was physically impossible for all the proceedings, discussions, &c., to go into, or be attached to, the Joint Report, it has always seemed to us that the only way to prevent misrepresentation was to insert or attach none, and to restrict this Report to the statement of points upon which we are agreed, as required by our instructions, and this would have been our position even if the conference had not proceeded, as we knew that it did as far as we are concerned, upon the supposition that all that took place was to be considered as confidential.

"We have felt it necessary to make the above full statement of our position upon the question involved in your letter, in view of your declaration that you are now bound to make certain communications to your Government relating to proceedings which we regard as protected by a pledge of secrecy.

"We are not willing to believe, however, that after due reflection you will find that course necessary.

"Believing that matters referred to in your letter, and also in this, are such as should, be officially confined to the members of the Commission, we submit our reply with the stipulation only, suggested and requested by you, that if you find it incumbent upon you to transmit to your Government a copy of your communication to us, or any part thereof, or any substitute or equivalent, you will also transmit this, our reply, as stating fairly our views upon the question of such method of treating the proceedings of the conference.

"Finally, we are of opinion that the circumstances under which our conference is being conducted neither demand nor justify the discussion of questions involved by means of official correspondence, and we must, therefore, decline further consideration of the subject in that way.

"Yours, &c.

(Signed) "T. C. MENDENHALL.
"C. HART MERRIAM."

With reference to the alternative plans of settlement advanced at these conferences, which are alluded to but are not specified in the foregoing letter of the United States' Commissioners, it may be explained that the only measures of protection mentioned or advanced by these Commissioners, were such as involved as an essential condition the total suppression of sealing at sea, while leaving the management and conduct of affairs

upon the breeding-islands entirely under the control of the United States' Government, or of their lessees for the time being. They included, in other words, no conditions of compromise as between the respective interests involved, and no attempt to deal with the facts as they exist. The proposition was, in fact, several times advanced by the United States' Commissioners, that the purpose of the meeting of the Joint Commission was simply that of the consideration of means for the preservation of the fur-seal as an animal. It is very obvious that such a purpose must be best served by the prohibition of *all* killing of fur-seals everywhere; but it is equally clear that the existence of rival interests in respect to the capture of this animal for purposes of commerce was the moving cause of the whole of the negotiations and arrangements entered into. Had mutual interests not been involved, no question could ever have occurred between the two Governments.

The extraordinary position taken up by the United States' Commissioners in the matter, is sufficiently evidenced by their subsequent Several Report,* to some consideration of the opening statements to which the above remarks are directed. It is submitted that the assumption of such a position under the existing circumstances, and particularly in the light of the correspondence which had led up to the Agreement and Treaty, was in itself sufficient to prevent any further profitable discussion.

As to the schemes presented for discussion by us, which are characterized in the letter written by the United States' Commissioners as being without definite bearing and intangible, it may be sufficient to state that these have been substantially embodied in our Several Report of June 1892, and that we have there submitted them with the utmost confidence as embodying the principles under which a just and efficient control of the seal fisheries of the North Pacific may be arrived at. They are at least an honest effort to deal with the facts of the case as it exists, and as these must be dealt with if dealt with at all. The provisions outlined are such as to admit, in our opinion, of an efficient control, and if it be not possible, to a single seal, to decide what effect any particular safeguard may have, this appears to us to be immaterial so long as the general scope of the provisions is such as to enable the initiation of measures of protection, which, by reason of their adaptability to changing circumstances, shall obviate any excessive or dangerous decrease in the number of seals, while admitting at the same time of expansion under circumstances which may warrant this.

To further pursue the subject here referred to might have the appearance of entering into useless controversy. Had the proposition earnestly pressed by us for Joint Minutes of the meetings been assented to by the Commissioners of the United States, there would have been no need even for the remarks now made, for no questions could have arisen such as those which result from the statements subsequently made on the part of the United States' Commissioners in their Several Report.

In what follows it will be convenient to take up the several subjects in the order in which these were treated in our original Report, and, as far as possible, under the same headings.

(A.)—*Migration and Range of the Fur-seal of the North Pacific.*

Having, as the result of our investigations and inquiries in 1891, been enabled to trace out and embody in our original Report a general outline of the migration-routes of the fur-seal in the North Pacific, both on the American and Asiatic coasts, together with the principal regions of resort of the animal at different seasons, or summer and winter homes, special attention was directed, in the inquiries and further investigations suggested by us in 1892, to the continued investigation of these matters. The results obtained have been for the most part included in the Appendices of the Counter-Case of the British Government, and it will here only be necessary to draw attention to their general bearings on the problems of the migration and distribution of the fur-seal at sea. The main features already expressed in our original Report, have been substantiated by the large number of new facts since accumulated, but there have also (as might be anticipated as a consequence of further investigation) been developed certain new features, and some exceptional occurrences and divergences from the general rule.

These may be classified under the heads of *area* and of *time* respectively.

In regard to *area*, it has become apparent that in addition to the main bodies of seals following the several migration-routes, smaller numbers of fur-seals occur in all parts of the North Pacific to the north of the latitude of the Sandwich Islands, the connection of which with these main bodies can not be certainly ascertained.

* United States' Case, p. 311.

As respects *time*, the new observations show, that while the great majority of the seals follow pretty definite routes, and return to the same places on their migration-routes with considerable regularity, there are smaller bodies of seals and individual seals to be found at all seasons of the year off the American coast to the northward of the Straits of Fuca, as well as in the ocean to the westward, far to the south of the Aleutian chain. These may possibly be merely stragglers or "strays" from the larger main migratory bodies, such as occur in the case of all migratory animals; but there is reason to believe that at least some of them are seals which resort for breeding sporadically to other isolated breeding-places along the American coast or in the Aleutian Islands, and have no intention of travelling to the Pribyloff or to the Commander Islands.

The observations showing the presence of seals in different widely separated parts of the North Pacific, are noticed at greater length in connection with subsequent remarks* on the intermingling of the fur-seals of different parts of the ocean, which should be referred to. It will here only be necessary, in relation to the migration and distribution of seals at sea, to allude specially to the area of ocean which is comprised within a line drawn from the intersection of the 180th meridian and the Aleutian chain to the vicinity of the mouth of the Columbia River. Within such a line, the greater portion of that part of the migration-route of the fur-seals of the eastern side of the North Pacific which lies beyond Behring Sea is included. There is now abundant evidence to show that a certain number of seals are to be found in all parts of the area so defined at all seasons of the year, though the number so occurring during the summer months, in which the great body of seals are concentrated in Behring Sea, is comparatively small. Thus Mr. Macoun writes:† "I was delayed there [Victoria] until the 5th June, when I embarked on Her Majesty's ship 'Nymphe,' her Captain having been instructed to convey me to Unalaska. The first seals were seen on the voyage northward, 6th June, off Clayoquot Sound, Vancouver Island, and until we arrived at Middleton Island (15th June) seals in greater or less numbers were seen every day." All the seals thus noted, during this part of the cruize and in the region specified, formed no part of the main migrating bodies of seals, which were then much farther to the northward and westward.

Statements contained in the evidence of sealers, included in the Appendix to the British Counter-Case,‡ similarly show the presence of a certain number of seals in the months of July, August, and September in this area.

It is further noteworthy that a few seals have been taken in Bristol Bay, the extreme eastern part of Behring Sea, in September,§ and that evidence is also given to the effect that a few hundred seals are taken every year in the autumn in the vicinity of Marzovia, to the north of Sannak Island, near the south-western end of the Alaskan Peninsula, and outside Behring Sea.‖

The habit of extended and regular migration in animals is, as a rule, confined to birds and fishes, and the habits of birds, in this respect, are so much the best known that they afford for all purposes the most available terms of comparison. The fur-seal, with some of the hair-seals and the whales, stand almost alone among mammals in pursuing proximately regular routes of annual migration, and the fact that they do so is in evident connection with their marine habitat and the facilities which it has afforded for the growth of such migratory instincts. The irregularities which become apparent on detailed study of the migrations of the fur-seal, with the occurrence of stragglers at all seasons, practically everywhere within the limits of the routes followed, are fully in accord with what is known in the case of birds. Neither must it be assumed, as is sometimes done, that the fur-seals move, when upon their migration, in a single "herd," even in the most extended possible use of that term. The facts observed show, that the following judicious remarks made by Dr. C. H. Merriam with respect to the migration of birds, apply equally to that of the seals. Dr. Merriam writes:—

"There is no evidence to show that in any species of bird a sufficiently large proportion of the total number of individuals comprising the migratory host move forward together at one time to justify the description of such a movement as that of 'the bulk of the species.' On the contrary, migration consists of a series of successive movements or waves, each of which brings a variable number of individuals to places a variable distance in advance of the point or points from which they started."¶

* Page 23, *et seq.*
† British Counter-Case, Appendix, vol. i, p. 136.
‡ Ibid., Appendix, vol. ii, p. 27.
§ Ibid., p. 91.
‖ Ibid., p. 119.
¶ "Report on Bird Migration in the Mississippi Valley in the years 1884 and 1885," by W. W. Cooke, 1888, United States' Department of Agriculture, Division of Ornithology, Bull. No. 2. Foot-note to p. 47 by Dr. C. H. Merriam.

Little in addition to the facts already given in our previous Report, has since been gathered respecting the extent or outlines of the main area of resort of fur-seals during the winter months in the vicinity of the Japanese coast; though the facts communicated by Consul Hall, from Hakodate, bear out the general accuracy of our delineation of this area.* The observations recorded by Captain Marshall, of the steam-ship "Empress of India," who writes under date the 22nd May, 1892,† appear, however, to show that the main body of fur-seals, when leaving their winter home on this side of the North Pacific for the Commander Islands, extends further to the eastward than the lines laid down on the map (No. II) accompanying our previous Report. Captain Marshall, between the 19th and 20th May, met with numerous seals "between latitudes 38° and 46° north and longitudes 146° and 169° east."

In pursuance of the necessity, explained on a former page of this Report, of including in it some criticism of the maps appended to the Case of the United States which bear directly on seal life, a few words may be said here on the migration chart (No. 3) included among these.

A copy of the migration chart prepared by us in accordance with the result of our investigations in 1891, during which special attention had been devoted to this subject, was communicated to the United States' Commissioners on the 12th February, 1891, during the progress of our joint conferences. It may therefore be assumed, that the chart accompanying the United States' Case was prepared with a knowledge of the general results of our observations, and, as important differences occur between the two charts, such differences should be based on some entirely trustworthy evidence which remained unknown to us.

On examining the chart accompanying the Case of the United States, it will in the first place be observed that it deals only with the seals of the eastern part of the North Pacific, which in the main frequent the Pribyloff Islands at the breeding season, the assumption being made that these may be considered as entirely separate from those of other parts of the same ocean. This assumption is elsewhere dealt with anddisproved.

It will next be noticed that the position and composition by sex, &c., of the bodies of seals are indicated with an appearance of precision in each of the months dealt with on the chart. This would lead to the belief that a large amount of precise and trustworthy data have been considered in compiling the chart and embodied in its construction. On the face of the chart it is merely stated that it has been "drawn from data compiled from testimony herewith submitted." In the Case of the United States‡ it is admitted that the course pursued by the seals when migrating "is to a certain extent conjectural," but the chart is referred to as affording substantial information, and as having been "prepared from the data contained in the depositions herewith submitted." References are, moreover, given to the particular depositions upon which the various features shown on the chart depend. It is thus easy to refer to the information relied upon, and this has been done, with the result that it has been found to be of the slightest and most inconclusive character possible. The evidence, in fact, affords no valid confirmation of the indications on the chart.

As it would be out of place to attempt a detailed analysis of this evidence here, an examination of it, as it appears in the Appendices of the United States' Case, is invited.

It would seem, from the chart, that the seals, after leaving the Pribyloff Islands, traverse a large part of the Pacific by an unknown route, and next appear in January off that part of the coast of America which is comprised within the territory of the United States, entirely to the south of any part of the coast of British Columbia.

The evidence quoted in support of the indications given for this particular season, is that contained in depositions by Captain Bryant, Dr. Dall, J. Hoffman, A. Irving (a Makah Indian), C. Lutjens, and H. H. McIntyre. Captain Bryant's§ evidence professes to give little information on the point in question, and is almost entirely and admittedly conjectural; he supposes that the food-fishes travel northward in the spring along the coast (which is known to be erroneous), and that the seals follow them. Dr. Dall's‖ evidence consists also of conjecture. J. Hoffman merely says on this subject, in reply to a question on the direction of travel and probable destination of the seals: "I couldn't say as to that. I know they travel southward to a more milder climate."¶ A. Irving** merely states that the seals appear off Cape Flattery about the 1st January or last of December, and are to be seen till July. C. Lutjens†† gives no evidence on the subject in connection with which he is quoted; while H. H. McIntyre‡‡ gives very little information on it, and admits that what he says is chiefly conjectural.

* See Appendix, p. 52.
† British Counter-Case, Appendix, vol. ii, p. 213.
‡ United States' Case, pp. 124, 125.
§ Ibid., Appendix, vol. ii, p. 5.
‖ Ibid., p. 24.
¶ Ibid., p. 447.
** Ibid., p. 386.
†† Ibid., p. 458.
‡‡ Ibid., p. 42.

It is thus very evident to us—and we feel assured that this conclusion will be substantiated by any one who may take the trouble of comparing the map with the evidence adduced in support of it—that the position indicated as that of the great body of the seals in the month of January is nothing more than a conjecture, though appearing upon the chart as though resting upon an essential basis of fact.

This conclusion may be arrived at, as above stated, from a mere examination of the evidence offered in support of the chart; but it will further be found, on consulting our previous Report, that we have there embodied the result of extended personal inquiries made along the British Columbian and Alaskan coast, which conclusively show the landfall of the seals on their return migration in the autumn or winter to be erroneously indicated on the chart appended to the United States' Case.*

The facts thus obtained prove that along the whole coast of British Columbia, with a small portion of that of South-eastern Alaska to the north, and of Washington to the south, the seals are usually first seen about Christmas, or between that time and the 1st January. That they reach all parts of this long line of coast nearly simultaneously from the westward, and that they are continuously found in its vicinity till that period in the spring at which they begin to move northward. It is thus incorrect to state that the fur-seals as a body reach the coast of British Columbia from the south and during the progress of their northern journey; for though it is known that a few of these seals go as far south as the Californian coast, and while it is not improbable that these reach that coast at or not long after the time at which they reach that of British Columbia, it is not at the present time the case that any large part of the migratory host of seals resort primarily to the Californian coast, or find their winter home off that coast.

(B.)—*Food of the Fur-seal.*

Inquiries were continued in 1892 with respect to the food of the fur-seal, and additional facts have been obtained on this subject which are not without interest and importance.

In our previous Report, we summed up the result of our inquiries in 1891 in the following terms:—

"It may be said that the general tenour of the evidence shows that while the fur-seal has been known to eat almost all kinds of fish, including cod, and even halibut, its favourite diet consists of small fish, of which herring, probably from its size and from its gregarious habit, is altogether the most important."†

The ulachan, frequenting the inner waters of the British Columbian coast, was also mentioned, and the squid or cuttle-fish was particularly referred to. It was further stated that:—

"The most important fact to be gathered from these observations is that the fur-seal is not usually a bottom feeder, and that it is not necessary that its feeding-grounds should be found upon submarine banks situated at such moderate depths as those to which the seal may attain by diving or 'sounding.'"‡

A large amount of later evidence, now available,§ and contained in the statements of sealers, tends to show that the above-quoted remarks probably require some modification, for, though still believed to be essentially in accordance with the facts, it becomes apparent that the fur-seal more frequently than had been supposed preys upon larger fishes which may be taken by it at some depth from the surface. These statements also show that the diet of the fur-seal varies considerably in different parts of the ocean which it frequents, doubtless in accordance with the relative abundance of fishes of different kinds in these places. The white hunters say that seals taken along the British Columbian and Alaskan coasts to the south of the Aleutian Islands are found to be feeding principally upon salmon, cod, and squid, though to a certain extent also upon other fishes of all kinds. In Behring Sea, the same men observe the food met with in the stomachs of seals to consist chiefly of squid, cod, and "mackerel," the order of mention being in each case that of importance.

Further evidence obtained from Indian hunters of the west coast of Vancouver Island,‖ more particularly from those of the vicinity of Barclay Sound, fully substantiates the statements already made by us as to the following of schools of herring by the seals along that part of the coast, and the direct relation between the abundance of

* Report of British Commissioners, pp. 29-32. † Ibid., para. 326. ‡ Ibid., para 230.
§ British Counter-Case, Appendix, vol. ii, p. 43 *et seq.* ‖ Ibid., p. 140.

herring and that of seals at particular seasons and in particular places. It is generally in pursuit of herring that the seals enter, as they sometimes do, the inner waters and harbours of that coast. The Indians say, that when hunting farther out to sea off the same coast, they find the stomachs of seals to contain salmon, cod, red-cod, halibut, herring, squid, and sometimes shrimps.

The salmon is particularly mentioned by a number of witnesses as being one of the principal food fishes consumed by the seals when off the British Columbian coast.

It is thus evident that, in addition to the depredations of the fur-seal upon the food fishes generally, of which the capture has not yet become in the region in question a commercial interest of great magnitude, they must exercise a special effect on the salmon frequenting the region, upon which the most important fishery industry of the coast of British Columbia and Southern Alaska is based.

Respecting the abstinence of fur-seals from food while resorting to the breeding islands, the most important information is that supplied by Mr. Macoun, who had excellent opportunities during the time spent by him on the Pribyloff Islands in 1892 to obtain further and consecutive observations upon the absence of excrement upon the rookery-grounds. His account of these observations is given in his Report.* He speaks of noting occasional excrement voided by females before labour, and thus immediately after their arrival at the islands; also of small quantities of excrement due to pups upon the rookeries, still unweaned, which is quite distinctive in appearance, and also by reason of its small amount; but he remarks particularly on the absence of excrement due to larger seals of any class, either on the breeding- or hauling-grounds. Mr. Macoun's observations thus fully confirm those made by ourselves during our visits to the islands in 1891, and also those quoted in our original Report from Captain Bryant.† It will be remembered, that it is universally acknowledged that the mature bulls hold their places upon the rookeries without going to the sea for any purpose during the whole time of their continuous resort to the islands, and that the absence of food in the stomachs of the many thousands of young males killed for skins shows that seals of this class likewise abstain from food when they resort to the islands.

It is thus the female seals alone which can be supposed, under any hypothesis, to resort to the sea for food, and though the number of such seals which has been killed on the islands (except possibly under the name of young males) is insufficient to afford ground for absolute conclusions, yet all that are known to have been examined showed no food, while the absence of excrement from the rookery-grounds affords the best possible evidence to the effect that, so long as they resort to these grounds, they certainly do not regularly or usually feed.

An animal with the voracious appetite which the fur-seal is known to possess, and consuming, under ordinary circumstances, many pounds of fish every day, would necessarily, if feeding while resorting to the breeding-grounds, deposit there such quantities of excrement that this would not only be very manifest, but would before long, in each season, render it impossible for the seals themselves to continue to frequent these places. As a matter of fact, the dejecta of the *Phocidæ* and the *Otaridæ* is of such a character that if present in any quantity it could not possibly escape observation.‡

Further evidence with the same bearing, is afforded by the abundance of fish met with in the immediate vicinity of both the Pribyloff and Commander Islands, a fact subsequently referred to in greater detail.§

In paragraph 240 of our Report, we have alluded to the fact that young seals in September were observed either playing with or eating fronds of kelp, which occurs in great abundance along the shores of the breeding-islands, but added that, in our opinion, it was very doubtful whether they were really eating this material. Mr. Macoun, however, as the result of his further observations, thinks it probable that the young seals do really to some extent feed upon the kelp, and quotes evidence to the effect that from the time they go into the water they begin to obtain a certain quantity of food of this character, as well as crustaceans, squid, and other similar

* British Counter-Case, vol. i, p. 144.

† British Commissioners' Report, para. 242 *et seq.*

‡ See Appendix, p. 63.

§ The partial, if not complete, abstinence of the grey seal from food during the breeding season, of interest for comparison, is shown by the following remarks of Mr. Robert Collett:—

"During the pairing season the males lose from 50 to 70 kilog. The female, the blubber of which, so to speak, is transferred through the milk to the pups, loses somewhat less, or from 30 to 50 kilog." —(Robert Collett, Proc. Zool. Soc. of London, 1881, p. 386.)

animal food.* Mr. Macoun was further informed by Captain Webster, that when he raided Robben Island in 1870, about 600 pups remained after the older seals had been killed, and that when he finally left the island these were getting fat along the shore upon such food as they could pick up there.†

There is thus much reason to believe that the pups early begin to secure a certain amount of food on their own account.

(C.)—*Physical Characteristics of the Pribyloff and Commander Islands, and Nature of the Breeding-grounds.*

On the points treated of under this heading in our original Report, the information since obtained is merely confirmatory of the statements made in that Report. The notes respecting the formation of new breeding-rookeries at several places on the Asiatic side of the North Pacific, serve to show that no very peculiar physical conditions are essential to the fur-seal at the breeding season, and go further to disprove statements, made on very slight evidence, to the effect that such conditions are to be found on the Pribyloff and Commander Islands, and there only.

An examination of the meteorological data available for the North Pacific, further shows that the conditions in this respect existing on the islands of the Aleutian chain, together with those of much of the west coast of North America, are intermediate in character between those found on the Pribyloff, Commander, Robben, and the Kurile Islands, to all of which places the seals regularly resort for breeding purposes. It may be assumed that the meteorological conditions on the places named are favourable to the fur-seal at the breeding season, and from this assumption it follows that places intermediate in respect to climate between the known variations of climate favourable to the seal, might equally be adopted as breeding-places if other conditions served.

It is, therefore, no longer reasonably possible to assume that highly peculiar characters, apart from those resulting from the freedom from disturbance consequent on the absence of inhabitants and predaceous animals, have been ruling causes of the hereditary resort of the fur-seal to the Pribyloff and Commander Islands.

Under heads (D), (E), and (F) of our original Report, relating to the annual progress of events in seal life on the breeding-islands, to the age at which males reach virility and the females produce young, and to the requisite proportion of sexes, respectively, no additional information of importance has since been obtained.

(G.)—*Coition.*

The statement made under this head, to the effect that the act of coition is frequently performed at sea, was, in our opinion, borne out at the time by sufficient evidence to substantiate it; though we were aware that some authorities were fully committed to an opposite view, holding that coition occurred only on land and on the breeding-islands alone. The result of further inquiries has been to establish the accuracy of our original statement beyond any possibility of doubt.‡

The evidence of no less than thirty-seven pelagic sealers can now be quoted to the effect that they have actually observed fur-seals pairing at sea, and many of them describe the circumstances of coition, while some have killed both male and female at such times. The evidence relates not only to Behring Sea, but also to the vicinity of the Fairweather grounds. Some hunters, in fact, say that pairing or attempts at pairing at sea may be seen whenever large numbers of seals of different sexes are found together.

The facts thus disclosed have important bearings on seal life generally from several points of view. They show that intermingling by seals of different parts of the North Pacific must imply interbreeding; they serve to account for irregularities in date of bringing forth by the females which would otherwise be difficult to explain; they further supply a reason for the occasional resort of seals to bring forth their young to various places comprised within the general migration-routes of the principal bodies of seals; and indicate in what manner new breeding-places may be established from time to time if the circumstances are otherwise favourable.§

* British Counter-Case, Appendix, vol. i, p. 144. † Ibid., p. 142.

‡ British Counter-Case, Appendix, vol. ii, pp. 33, 34.

§ Compare Report of British Commissioners, paras. 447–450.

Whether coition at sea has now become more usual than previously, as a direct consequence of irregularities arising from the paucity of virile males of full age holding positions on the rookeries, it is difficult to determine, but some remarks made by Captain Bryant, and quoted in our original Report,* would appear to indicate that this may be the case.

On the subject of coition, the following extract from a paper on the grey seal (*Halichœrus gryphus*) of the coast of Norway, by Mr. Robert Collett, may be of interest:—

"Immediately after the birth of the young one, copulation of the sexes takes place. If the female does not come down into the water of her own accord, the male goes up on the rock and drives her down, as the copulation only takes place in the water, during which they take the same position as dogs and other four-footed animals. The female, however, is never entirely submerged, the snout being constantly above water, as is also the case with the male's head. Copulation apparently takes place several times."†

(H.)—*Age at which the Young swim.*

Observations made by Mr. Macoun in 1892 in regard to this subject, show that in that year, on St. George Island, the young were first seen to be taking to the water on the 18th July, while about the 28th of the same month they were apparently perfectly at home in the water, and were seen often at considerable distances from the shores. Early in August, the young began to haul out in considerable numbers at some distance, often more than a mile, from the rookery-grounds upon which they had been born and suckled.

Mr. Macoun further notes, that he never met with any evidence that the young are taught to swim by the older seals or learned to swim by degrees on their own account. The fact that a young seal cut from the mother and thrown into the water is able to swim for some time, is alone sufficient to disprove any statement that a young seal is able to swim only in consequence of having been taught to do so.‡

(I.)—*Distances to which Seals go from the Breeding Islands in search of Food.*

It has been pointed out in our Report, and also on a former page of this Supplementary Report, that the whole question of the feeding of seals while resorting to the breeding-islands is very much narrowed down by the evidence showing that abstinence at this season is the rule. It has in fact been shown, that all classes of males (except of course the pups) practically abstain from feeding during the time they resort to the breeding-islands, and that if the females feed at all during the same period, this cannot be till so late in the season that the organization of the rookeries has practically broken up. This is proved not only by the absence of excrement upon the rookeries, but also by observations as to the abundance of females observed in the immediate vicinity of the rookeries after the season at which they begin to frequent the water arrives, with the comparatively very small numbers seen at distances of only a few miles from the islands at the same time.

It is further confirmed by the abundance of fishes, such as constitute the food of the seal, met with in close proximity to both the Pribyloff and Commander Islands, which is such as to show that, if in search of food, seals need not go to any great distance for it; while it also indicates that they are not actually in search of food when resorting to the water about the islands, as any systematic pursuit of the food fishes by such great numbers of carnivorous animals as are there to be found, would speedily result in driving all such fishes to a distance from the islands.

Some facts ascertained respecting the abundance of fish here alluded to, are mentioned in our former Report,§ but further and full observations carried out by Mr. Macoun in 1892 are given by him in some detail in his Report, and have led him to conclusions identical with those above stated.‖

It is, however, further stated in our Report that females in milk are occasionally

* Compare Report of British Commissioners, para. 295.
† Robert Collett, Proc. Zool. Soc. of London, 1881, p. 384.
‡ British Counter-Case, Appendix, vol. i. p. 141.
§ Report of British Commissioners, para. 231. ‖ British Counter-Case, Appendix, vol. i, pp. 138, 139.

killed at sea by pelagic sealers. Additional evidence upon this subject has since been obtained, by which it is rendered evident that the operations of pelagic sealers have at times been carried on at too short a distance from the breeding-islands, and, as pointed out in our previous Report, it is for the purpose of safeguarding the seals actually engaged in nursing their young from such losses, that a zone of protection of suitable width about the breeding-islands is advocated, as a measure of material benefit in any general scheme of regulations which may be proposed.

It is not, however, believed that the killing of females in milk has ever assumed really serious proportions in Behring Sea. It is exceedingly easy to magnify any instances of this kind which have occurred, or to confuse the rare and exceptional killing of females showing traces of milk, at great distances from the islands, with a hypothetical limit of distance to which it may be assumed *all* nursing seals extend their wanderings during the period of suckling. Causes are not wanting on the Pribyloff Islands such as may well account for the abandonment of the shores of the islands by females resorting there, and chief among these are to be mentioned the disturbance incident to "driving" as practised upon the islands.* It is further found that in a number of female seals killed in Behring Sea in which milk is observed during the flaying of the carcasses, that such milk has occurred only in very small quantities, or in a curdled and partially solid condition, showing that these females have ceased to suckle their young, either from abandonment consequent on causes such as that above mentioned, or because the young had already been partially or entirely weaned. Such females have manifestly no object, and probably no intention, of returning to the islands, and have been either merely living and feeding at sea, or have already set out on their southward immigration. Later evidence, in which care has been taken to inquire into the actual circumstances under which milk had been observed in the breasts of females killed at sea, will be found in the Appendix to the Counter-Case.†

It will be observed on examining this evidence, that after about the 1st August, seals showing more or less milk are generally "running dry," and show evident signs that the young are no longer dependent upon them for food.

Further evidence indicating the occasional taking of seals at sea with traces of milk at very great distances from the islands, shows that it is impossible by means of any rational limit of protection to obviate the killing of a few such seals, but that the killing of these seals can in no way affect the young upon the islands, which have ceased to be dependent upon their mothers, either in the natural course of events, or because abandoned by them.

It is further probable, if not certain, from the observations recorded, that some of the females found in milk have dropped their pups at sea, because of inability to reach the breeding-places in time, and that the young have consequently been lost.

In our previous Report, we pointed out that under the provisions of the *modus vivendi* in Behring Sea we were ourselves prevented, as a point of honour, from carrying out such experiments, involving the killing of seals in that Sea, as might have assisted in offering exact data as to the distance to which females engaged in suckling may at times go from the Pribyloff Islands.‡ We were at the same time convinced from the available facts that the distances to which any considerable number of such seals actually, and under ordinary circumstances, go, are so moderate as to be easily covered by such a zone of protection drawn about the islands as that already referred to. Further evidence gathered in 1892 serves to sustain this conclusion, though by magnifying exceptions so as to make them to appear to be the rule, very different results may easily be arrived at.

(J.)—*Habits when suckling.*

It will be found on examining the Report made by Mr. Macoun of his investigations on the Pribyloff Islands in 1892, that he devoted much time and trouble to endeavouring to ascertain the relations existing between the female seal and her young, particularly with a view to settling, if possible, the question whether each female suckled her own young one only. The information thus gained by him is much more complete and scientific in its character than any heretofore published, as it rests

* Report of British Commissioners, para. 356.
† British Counter-Case, Appendix, vol. ii, pp. 22, 23.
‡ Report of British Commissioners, para. 308.

directly on observed facts, and does not depend merely on assumption or assertion, as is the case with too much of the evidence heretofore offered on this particular subject. The facts resulting from Mr. Macoun's observations* seem to show that though the female undoubtedly knows and suckles her own young alone for some time after birth, this ceases to be the case after the first few weeks, when the females begin to resort frequently to the water, and the pups are continually moving from place to place, and gathering together in "pods" or clusters on various parts of the rookeries and elsewhere in their vicinity. Mr. Macoun sums up his remarks on this point in the following terms: "From my observations on the rookeries of St. Paul and St. George Islands, I cannot but believe that female seals are often uncertain whether young seals that nurse are their own or not, and that many pups nurse without the old female being aware of the fact, so that there is little chance of a very young seal starving to death unless it wanders quite away from the breeding-ground, and I am sustained in this belief by the fact that I never saw an emaciated or weak-looking pup on that part of the rookery nearest the water."†

A recent communication from Mr. C. H. Jackson, of Cape Colony, from whom a letter appears in our Report, further testifies to his belief in this matter with respect to the fur-seal of that region, to the effect that any mother seal will suckle any young one; and additional evidence on this point is given by Mr. H. E. Browne, in which he refers to the fur-seals of the Auckland Islands.‡

As stated in our original Report, the analogy with other animals would certainly tend to favour a belief that each female seal would suckle only her own young one, but analogy in an opposite sense is not wanting in the case of gregarious animals, and at best, analogy on such points is but an uncertain guide, for many animals, even when closely allied, are found in fact to differ very widely in habits.

Speaking of the conditions observed in the middle of August 1892, Mr. Macoun writes: "At Black Bluff and between Zoltoi Sands and the village landing-place large bands of pups swam about from place to place or hauled out on the rocks and sand. It does not seem possible or probable that the mother seals could find their own young ones among so many and at such a distance from the breeding-ground, and during the whole time I was on the Pribyloff Islands I never saw a female seal suckle a young one except on a rookery."§

The belief entertained by us that a young seal is not absolutely dependent on its own mother during the period of suckling is not absolutely insisted on, because the proof is not considered to be complete, but the evidence of observations made in 1892 with the special purpose of testing this belief, in our opinion go far towards sustaining it. Certainly no partial observations which refer merely to a certain degree of noted selection exercised by female seals in regard to the young which they suckle, can be accepted as proving a contrary proposition.

In our previous Report we were unable to make any precise statement with regard to the actual length of time for which the young seal is entirely dependent upon the mother's milk for sustenance. It appears probable, however, that the process of weaning is a gradual one, perhaps intermittent, and certainly subject to considerable variation in respect to the time of its close. The later observations quoted in previous pages of this Supplementary Report (under heads B and I) serve to show that the young seal does not remain for a very long time entirely dependent on the mother, and tend to modify the remarks made by us in our previous Report on this subject.‖

(K.)—*Natural Causes of Destruction.*

Under this head, little can be added to the remarks already made in our previous Report, except those facts connected with the death of young seals on St. Paul Island to which attention is given under the next heading. It may, however, be mentioned that a further cause of death of young seals, not previously noticed by us, is recorded by Captain Bryant, to whose interesting observations of seal life on the Pribyloff Islands frequent reference has already been made. Captain Bryant writes: "The beachmasters, and the little seals that have not yet learned to swim, remain on the land. When the sun shines for two or three hours, and the

* British Counter-Case, Appendix, vol. i, pp. 142–143.
† Ibid., p. 143.
‡ British Counter-Case, Appendix, vol. ii, p. 83.
§ Ibid., vol. i, p. 141.
‖ Report of British Commissioners, para. 241.

rocks become heated, there are occasional deaths among the beachmasters and very young pups from sunstroke, the symptoms being a nervous jerking of the limbs, followed by convulsions and death. Fortunately these occurrences are rare, and it was only in 1874 that any appreciable number were lost from that cause. That year many young seals died about the first of August."*

(L.)—*Mortality of Young Seals in* 1891 *and* 1892.

In our Report of investigations in 1891, the mortality of young seals or "pups" occurring on St. Paul Island in that year was specially noticed and discussed, not only because of its importance in connection with the general questions under investigation, but also for the reason that it became apparent that this mortality would be employed in the interests of the lessees of the breeding-islands as a further argument directed against the practice of sealing at sea. If it could have been established on any reasonable grounds that the mortality of pups noted in this particular year was directly due to the operations of pelagic sealers, and resulted from the killing of the mother seals at sea, it obviously followed that those interested in destroying the pelagic industry would have been furnished with a new and effective argument, based on economic considerations, as against that industry. It was therefore our endeavour to examine, in a manner as complete and as impartial as possible, the circumstances attending the mortality in question, and we were thus led to believe that it could not, in accordance with these circumstances, be justly attributed to sealing at sea, though we remained in doubt as to which of several other causes mentioned it was really or mainly due.

Unfortunately, a similar mortality of young seals, equal, if not greater, in amount than that of 1891, has again occurred on St. Paul Island in 1892. But in this year, as a result of the provisions connected with the new *modus vivendi* then brought into operation, Behring Sea was entirely closed to pelagic sealers. No previous "warning" was accorded to sealing-vessels, but any vessel sealing, or provided with sealing apparatus, and found within the Sea to the east of the line of demarcation (which at its nearest point is over 300 miles to the westward of the Pribyloff Islands), was subject to immediate seizure. In consequence of these regulations, and of the strict watch maintained by two of Her Majesty's vessels and a considerable number of cruizers of the United States, practically no seals were taken in Behring Sea. The evidence is in fact such as to show that not more than 500 seals in all were thus taken in 1892.† It is conclusive in respect to the practical non-occurrence of killing at sea in Behring Sea so far as any evidence can be, and we are thus enabled to refer to the observed mortality of young seals apart from any considerations dependent on pelagic sealing.

The occurrence of this renewed mortality in 1892, therefore, in the first place, indicates in the clearest possible manner that it was not due in that year to any killing of mother seals at sea. In the second place, it affords additional room for the belief that the similar mortality in 1891 was likewise not due to such killing.

In 1892, as in 1891, the excessive mortality was strictly confined to St. Paul Island, a circumstance in itself sufficient to show that any general killing at sea could not reasonably be held accountable for it. It was likewise in 1892, as in 1891, chiefly confined to certain rookeries, and even to certain parts of these rookeries, a fact clearly indicating that it was in some way fundamentally due to local causes.

As soon as it became apparent in 1892, that a considerable mortality of young pups had occurred, or was occurring, on St. Paul Island, Mr. Macoun took measures to thoroughly investigate all the circumstances, and in his Report he has given a full account of these.‡ Attention is called to this Report, which need not be repeated here. The actual cause of the deaths observed cannot be definitely stated. Mr. Macoun informs us that he could not obtain from the agents on the island a sufficient supply of alcohol to enable him to bring back any of the bodies in order that a careful examination might be made of them.

We are inclined, however, to believe that some disease of an epidemic character must in the main be held accountable for the mortality. This suggestion was offered, amongst others, in the case of the mortality observed in 1891, but the circumstances

* Allen, "Monograph of North American Pinnipeds," p. 408.
† British Counter-Case, Appendix, vol. i, p. 156; Appendix, vol. ii, p. 42.
‡ Ibid., Appendix, vol. i, pp. 145–148.

were in that year not so favourable for the complete elimination of any effects possibly attributable to sealing at sea.

We may add, that there appears to us to be a distinct probability that the ravages of some such disease may have been aided by a general deterioration of the breeding stock, resulting from the persistent killing of an excessive number of males which has continued during the past twenty years under the franchise of the Company leasing the Pribyloff Islands.

Mr. Macoun particularly remarks in his Report, not only the restriction of the mortality spoken of to St. Paul Island,* but also the fact that no such mortality was reported to him on the Commander Islands, though a larger number of seals was in 1892 killed at sea in the vicinity of these islands than ever before.†

It is obvious from what has already been stated, that the whole theory by which it is endeavoured to attribute the responsibility for the death of young seals on the islands to the operations of pelagic sealers, rests on the hypothesis that the suckling females go as a rule and normally to great distances from the islands to feed, and that each young seal is absolutely dependent for existence upon its own dam. The first of these hypotheses has, in our opinion, been shown to be incorrect, while the second remains a hypothesis with many strong arguments against it.

We are, however, fortunately not left in doubt as to the effect of pelagic sealing in 1892 by reason of the practical non-existence of such sealing in Behring Sea in that year.

(M.)—*Methods of enumerating Seals on the Pribyloff Islands and Estimates of Numbers.*

It appears to be unnecessary to add anything to the remarks already made under this heading in our Report. While formerly, so far as can be ascertained, placing confidence in such estimates, it appears that the Government of the United States, in the light of facts recently advanced, no longer refers to such estimates as trustworthy data.

(N.)—*Various Natural Indications of former Extent of Ground occupied by Seals on the Pribyloff Islands.*

In the course of our examination of the Pribyloff Islands in 1891, particular attention was devoted to such natural indications or traces in the vicinity of the rookery- and hauling-grounds as seemed capable of affording any evidence respecting the number of seals present there at that time in comparison with the numbers which may have frequented the same grounds in previous years. The absence of precise recorded data, whether numerical or such as might have resulted from annual measurement of the ground occupied in each year, seemed to render it important to utilize as far as possible any less direct evidence bearing on this subject. An account of the investigations thus made is given in our Report.‡

The noticeable traces of former occupation of ground by seals were found to be: the existence of a zone of short yellowish grass surrounding most of the rookery grounds, and affording a "grass limit" of a determinable character; the occurrence or otherwise of a growth of lichens on the rocky projections of the surface, and, in some cases, the polished angles of rocks which had for long periods been either continuously or from time to time passed over by large numbers of seals.

The conclusions arrived at by us were, however, that all such indications are untrustworthy as a means of affording information respecting the area *occupied by seals in determinate former years as contrasted with that at present occupied;* that they could not be employed as true indications of the numerical decrease of seals in recent years; that they marked approximately the maximum limit of oscillation and range of seal occupation during a very long period of years; and that recent surveys of the rookeries and of the area covered by such traces of former occupation could be assigned absolutely no fixed value in determining the changes in volume of seal life upon the islands in former years, whether remote or recent.§

In 1892, Mr. Macoun further and closely investigated all these indications of the former spread of seals in the vicinity of the rookery-grounds. His observations scarcely admit of condensation here, but will be found in his Report. In conclusion, he writes:—‖

* British Counter-Case, Appendix, vol. i, p. 147.
† Ibid., p. 148.
‡ Report of British Commissioners, paras. 377–395.
§ Ibid., para. 395.
‖ British Counter-Case, Appendix, vol. i, pp. 148–151.

"When on the islands I was again and again told that the yellow grass marked the limit to which seals had reached. Admitting this to be true, there is no way of determining what proportion of this ground has been occupied by seals at one time. The lichen-covered rocks prove that much of it has been deserted by them for many years, while there are other parts of it that exhibit unmistakable evidence that seals have been on it within a few years; and in yet other cases seals were seen in great numbers in 1891 and 1892 hauled out to the extreme edge of the ground defined by yellow grass, and in not a few instances a long way beyond it.

"When the rookeries on St. Paul Island were last visited in September, it was found that at all the larger rookeries, such as Reef, Tolstoi, and Polavina, the seals had hauled out as far as there were any signs of their ever having been before, and in many cases much farther. Photographs showing this were taken at all the principal rookeries."

The special importance now attaching to the subject above briefly mentioned, and the circumstance which justifies the further reference to it, depends on the use apparently made of such natural indications of the ground formerly occupied by seals in the maps of the several rookeries attached to the Case lately presented on behalf of the United States.

Note on Maps of Rookeries on the Pribyloff Islands appended to the Case of the United States.

It has already been explained that, while we do not intend to deal in this Supplementary Report with the statements advanced in the Case of the United States, or with those contained in its Appendices, the local knowledge required for a just criticism of some of the maps accompanying that Case, necessitates some remarks upon them by ourselves. This applies particularly to the Rookery Maps (Nos. 7 to 12).

To the accuracy of the topographical details on these maps no exception is taken. They are in this respect much superior to those produced by Mr. H. W. Elliott as the result of his surveys or sketches in 1872-74, which are the only other published maps. Neither is it necessary seriously to question the areas marked out as those occupied by breeding seals or as hauling-grounds in 1891. These it was possible approximately to ascertain and indicate in connection with the surveys made in the same year, upon which the maps as a whole are based. It must be remembered, however, as pointed out in our Report, that the ground occupied by the seals varies considerably at different times during the same season, and is often—particularly in the case of hauling-grounds—scarcely susceptible of precise definition. Such circumstances, doubtless, serve to explain the fact that notes and photographs taken by ourselves in 1891, in several instances prove to include features not shown upon the United States' maps. The precise date intended to be represented by these maps is not given.

The case is altogether different, however, in respect to the lines drawn upon the maps for the purpose of indicating the extent of ground occupied by seals at former specified periods. The titles of the various maps are uniform. All those relating to St. Paul Island purport to show, by red lines and other indications in red, the area occupied by each breeding-ground in the years 1891, 1882, and 1870 respectively. The maps relating to St. George Island are similar, save for the fact that the earliest date is there given as 1874 instead of 1870. With a single exception (that of Lagoon rookery), the red lines here referred to are made to show that in 1870 or 1874 the breeding-grounds were considerably more extensive than at present, that in 1882 they largely surpassed the dimensions attained in these earlier years; while it must be assumed that they have shrunk back within both these lines during the past ten years to the actually observed dimensions in 1891.

Each map, on its face, states that it is the result of survey by Mr. J. Stanley-Brown, but this gentleman never visited the Pribyloff Islands until 1891, and no explanation is given on the maps as to the origin of the lines laid down for the earlier years.

In the Case of the United States, the maps in question are several times referred to as though constituting in themselves definite and trustworthy evidence of the

character and amount of the decrease therein alleged to have occurred in certain recent years.* They are in one place stated, for the period extending from 1870 to 1881, to have been "verified by those most familiar with seal life during that period."†

A foot-note to the page on which this statement is made, affords a clue to the origin of that part of the information not referable to Mr. J. Stanley-Brown's observations, which appears on the maps. Turning to an affidavit by Mr. Brown, in which he speaks of these maps, he is found to say:—

"Upon the large-scale charts . . . . will be seen the approximate areas occupied as 'breeding-grounds' in 1891, as observed by me, *while the areas for certain previous years have been indicated by other observers.*"‡ No further explanation of the means by which these earlier lines were determined or recorded is given by Mr. Brown, nor does he even mention the names of the "other observers."

On examining other affidavits contained in the same volume, it is, however, possible to trace the sources of the information. It appears that Mr. H. H. McIntyre, (last upon the Pribyloff Islands in 1889) in 1892 sketched in the lines on the St. Paul Island Rookery Maps from memory, and certifies them to be approximately correct.§

In the same way Mr. T. F. Morgan (last on the Pribyloff Islands in 1887), again from memory, and in 1892, sketched in lines upon the St. George Island rookeries for 1874 and 1884 (1882, as stated on the maps).

The lines being thus obtained, Mr. Morgan certified to the approximate accuracy of Mr. McIntyre's delineation, and Captain Bryant (last on the islands in 1877), and Mr. S. Falconer (last on the islands in 1876) are further cited as witnesses to the approximate accuracy of the lines already drawn and shown to them.‖

It does not appear that either of these gentlemen was asked to draw lines of the same kind on separate maps, though Mr. Falconer suggested some changes in the lines drawn for the St. George Island rookeries. It is not stated whether these were accepted, or whether the lines appear as originally drawn by Mr. Morgan.

Nothing is said of the existence of any reports, memoranda, manuscript notes, or sketches which might have enabled Messrs. McIntyre and Morgan to preserve accurate records of the condition of the rookeries for periods of ten to over twenty years, such as to enable the graceful sinuosities and minute details of the lines drawn upon the Map of 1892 to have been recorded and preserved. As already stated, the only published maps of the rookery areas previously existing are those due to Mr. Elliott's surveys in 1872-74, and these are too sketchy and on too small a scale for the purpose of recording such detailed lines. Mr. Elliott again surveyed the rookeries in 1890, but the resulting plans have not been made public, although they were exhibited to us in Washington.

Upon the subject of the delineation of the rookery grounds, Mr. Elliott writes, in 1874:—

"Until my arrival on the Seal Islands, April 1872, *no steps had been taken toward ascertaining the extent or importance of these interests* of the Government by either the Treasury Agent in charge, or the agent of the Company leasing the islands. . . . . Impressed, therefore, with the necessity and importance of obtaining the exact area and position of these breeding-grounds, I surveyed them in 1872-73 for that purpose, and resurveyed them this season of 1874; the result has been carefully drawn and plotted out, as presented in the accompanying maps."¶

In an extract from Mr. G. R. Tingle's Report on the Pribyloff Islands for 1886, this gentleman writes:—

"Mr. Elliott embraced in his Report of 1874 a measurement by him of the breeding rookeries on this island (St. Paul), made July 10 to 18, 1872, *since which time no measurement has been made so far as the records of this office show.*"**

He then proceeds to speak of some measurements made by him in 1886, and in another extract from his Report for 1887, actually quotes figures for certain measurements of rookeries made on St. George Island in that year, but speaks of no plan.†† These measurements are intended to show that the rookeries were in the years mentioned steadily increasing, and it will be remembered that a continued increase was reported on the islands by the agents up to 1887.‡‡

* United States' Case, pp. 165, 168.
† Ibid., p. 165.
‡ Ibid., Appendix, vol. ii, p. 13.
§ Ibid., p. 44.
‖ Ibid., pp. 3, 167.
¶ Report upon the condition of affairs in Alaska, pp. 75, 76.
** H. R., 50th Cong., 2nd Sess., Report No. 3883, p. 174.
†† Ibid., p. 172.
‡‡ British Case, Appendix, vol. iii, p. 445 *et seq.* British Commissioners' Report, para. 681. H. R., 50th Cong., 2nd Sess., Report No. 3883, p. 72.

Mr. T. F. Morgan, already referred to as authority for the lines shown on the maps for St. George Island, was one of those testifying to this effect.*

Respecting his work of 1890, Mr. Elliott writes:—

"I began at once, and finished by the 9th June, an entire new topographical survey and triangulation of the landed area of the seven rookeries of St. Paul Island and those of St. George Island, so as to have these charts ready for instant use when the time came in which to observe the full form and number of the breeding seals as they lay upon this ground," &c.†

No reference to the existence of any surveys or maps of dates between those above referred to by Mr. Elliott can be found, and it cannot be supposed that, if any such existed, Mr. Elliott would, in his official position as Agent especially appointed to investigate the conditions on the Pribyloff Islands, have been ignorant of the fact.

When Mr. Elliott's published maps of the breeding-grounds on St. George Island for 1872–74‡ are compared with the lines intended to represent the same breeding-grounds in 1870 and 1874 on the maps now annexed to the United States' Case, it is found that the area and form shown differs very greatly in the case of every one of the five rookeries of the island.

Having taken pains to familiarize ourselves with all the published Reports and records bearing upon the condition of the islands since they passed under the control of the United States, and having found evidence throughout of want of any regular system even of inspection and report upon the condition of the breeding-grounds, with an almost complete absence of recorded facts relating to the actual condition of the rookeries in series of years,§ we have no hesitation in recording our belief that the indications of the limits in earlier years given upon the maps here criticized are not founded upon any trustworthy data. The mere boldness of assertion evidenced by the tracing of such lines and in such detail upon the maps, under the known circumstances may be admired, but it cannot be justified on any grounds worthy of credence.

It would be impossible, within reasonable limits, to criticize separately each of the maps of rookeries on St. Paul and St. George Islands to which the above general remarks refer: but, as in our former Report we have spoken in some detail of the conditions of the North-east Point rookery of St. Paul Island, which appeared to us to be the best adapted for study in connection with the present and former limits of the breeding-grounds, the map of this rookery presented in connection with the Case of the United States may be referred to as an example of the rest.

The line shown on that map as representing the outlines of the breeding-grounds in 1870, is in no way substantiated by reference to authorities. As shown from the previous quotation from an official Report by Mr. H. W. Elliott, no attention whatever had been given to the delineation of the areas frequented by seals before the time of his arrival on the islands, two years later.‖ The line also differs very widely from that published in a later official Report by Mr. Elliott as representing the breeding rookeries in the years 1872-74.

Similar remarks apply to the line drawn for 1882. There is no published record of any surveys in this year, and no explanation of the principles or data on which the line is laid are given. Though the "grass margin" or "yellow grass zone" previously referred to, is clearly traceable in connection with parts of the breeding-grounds at North-east Point, there is absolutely no evidence to show that this "margin" or "zone" ever at any time corresponded with a continuous spread of breeding seals, nor is there any evidence to show in what particular year various parts of this "margin" were reached by the seals. In addition, our local observations enable us to state that the line located on the map for 1882 does not correspond with this "margin," nor with any other naturally marked feature visible on the ground.

The areas shown as those of breeding seals in 1891, appear to us to be reasonably correct, though at the date of our first visit to these breeding-grounds (5th August) the breeding seals were extended in some places considerably beyond the limits there shown. The areas shown as those of "hauling-grounds" for the same year, are possibly correct for the early part of the breeding season, but, as explained in our previous Report, as early as the 5th August four considerable bodies of seals had, to the east of Hutchinson Hill, moved far back from the sea. Three of these had

* H. R., 50th Cong., 2nd Sess., Report No. 3883, p. 72.
† British Case, Appendix, vol. iii ("United States No. 2, 1891"), p. 58.
‡ "Monograph of the Seal Islands;" United States' Census Report.
§ Report of British Commissioners, para. 52.
‖ Page 19.

reached quite to the outer edge of the "yellow grass zone," while the fourth had nearly reached it.* None of these extensions are indicated on the map in any way.

On this map and others of the series, two additional features not previously mentioned, are indicated by characteristic markings in black. These are described in the following terms:—

"Undisturbed area; mixed vegetation;" and "Area disturbed from time to time by seals hauling; scant or uniform grass."

The large area to the west of Hutchinson Hill, marked as displaying the last-described character, happens to be identical with that especially noted by us as an instance of what we named, for the sake of brevity, "spurious grass limit."

The feature seized upon to outline this area, is in fact a physical one, as fully explained in our Report.† It has in itself absolutely nothing to do with any former or present spread of seals, and, as shown on the map, has no bearing whatever upon any question connected with the present discussion.

On reference to Mr. Elliott's "Monograph," a plate will be found showing a view of this particular part of North-east Point from Hutchinson Hill, upon which the edge of the area in question is clearly indicated by a continuous fringe of longer grass.‡ There is no reason to suppose that the draughtsman unduly limited the area over which seals were then (1872-74) spread, but it will be noted that none of these animals at that date were anywhere near the limit in question.

Respecting the large area similarly marked to the east and south of Hutchinson Hill, it is impossible to be so definite in statement as in the case of the last, but it may be said that the sandy character of the soil over a great part of it, is such as to insure and necessitate a "scant," if not a "uniform," growth of grass. We personally traversed this area on several different lines at different times, and have no hesitation in asserting that, with the closest attention to all observable facts, we saw nothing to indicate that it had ever at any time been resorted to by large bodies of seals. We may add, that if any attention whatever had been paid by us to the retrospective statements of one or two gentlemen who had been upon St. Paul Island in previous years in various capacities, but who, unfortunately, did not embody their observations in their Reports at the time, we might have been induced to believe that nearly the whole island had at some particular date in the past been more or less covered with seals. A sweep of the arm would often indicate a great tract which had been thickly crowded with seals many years ago, but assertions of this kind invariably proved unreliable when tested by any close inquiries or by observations of fact.

After a minute examination of the whole series of maps of breeding-grounds appended to the Case of the United States, we must therefore state most emphatically, that they afford no satisfactory basis of comparison between the outlines and consequent areas of the breeding-grounds in the several years named upon the face of the maps.

Comparative Numbers of Seals on the Pribyloff Islands in 1891 *and* 1892.

This subject may be referred to here because of its evident connection with the preceding remarks. In our original Report we have shown that the condition of the rookeries and number of seals observed upon the Pribyloff Islands in 1891, were such as to indicate that the conditions were at least as favourable as in 1890, while there was considerable reason to suppose that a substantial improvement had occurred in 1891. In 1892 Mr. Macoun's attention was directed to a further examination and comparison of the conditions on the islands in that year with those of 1891. Details are given which show in 1892, an undoubted and very considerable increase in the number of seals frequenting the islands. This increase extended to all, or nearly all, the rookeries on both islands, and took place both in regard to the seals actually upon the breeding-grounds and in respect to the young males, or holluschikie, on the hauling-grounds.§

The excessive slaughter on the islands in 1889, directed as it was against a reduced number of seals, directly produced the unfortunate conditions observed in 1890, as described by Elliott, Golf, and others in their Reports for that year. The restriction of killing upon the islands to 21,857‖ in 1890, brought about the favourable

* Report of British Commissioners, para. 390. † Ibid., paras. 393, 394.

‡ "Monograph of the Seal Islands," United States' Census Report, Plate IX.

§ British Counter-Case, Appendix, vol. i, pp. 51, 52.

‖ Not 20,995, as erroneously printed in our original Report (51st Cong., 2nd Sess., Senate Ex. Doc. No. 49, pp. 11, 12).

reaction noticed in 1891, and the continuance and further restriction of killing under the *modus vivendi* of 1891 (when but 12,071 seals were killed on the islands), resulted in the marked increase of seals upon the islands in 1892.

The sequence is so distinct in each case as to leave no possible room for doubt as to the connection between cause and effect. The smaller number of young males killed, naturally and directly resulted in an increase in the animals of this sex, but it does not so directly explain the greater number of seals actually established upon the breeding rookeries. The majority of these are of course females, and it appears thus to be shown that much incidental advantage to seal life has resulted from the comparative freedom from disturbance which ensued on the cessation of the efforts of previous years to make a large catch. In other words, females which from one cause or other had before been driven from the islands, began to return to them in a natural manner. The improvement referred to is clearly shown by a comparison of several of the photographs of rookeries taken in 1891 and 1892 respectively.

Allegations to the effect that the reduction of seals observed on the Pribyloff Islands in late years is wholly or chiefly due to pelagic sealing, are thus disproved by the observed facts of 1891 and 1892, for in 1889, 1890, and 1891* the catch of the pelagic sealers regularly increased in each year, while in 1892 it was only slightly reduced.

The direct and immediate advantage resulting from restriction and care easily applied upon the islands, is thus conclusively shown. On the other hand, the alarming reduction in number of seals frequenting the islands, which occurred several times before pelagic sealing began, equally shows how easily excessive slaughter or injudicious measures upon the islands themselves, bring about conditions destructive to seal life.

(O.)—*Changes in Habits of the Fur-seal in recent years.*

The additional facts obtained since our previous Report, in so far as they relate to subjects treated there under the above heading, serve merely to confirm what was previously said. Much additional evidence as to the increasing wariness of the seal at sea has been gathered, and nearly all of the hunters say that it is now almost impossible to approach seals when several are found together. It is also shown by the evidence, that the seals are now more than ever pelagic in their habits. The Indians hunting close to the coasts often complain of a scarcity of seals in late years, while a great number of pelagic sealers testify, to their continued equal or greater abundance where their hunting is chiefly carried on further from the land.† The actual catches made by the sealing-vessels, when the effect of the *modus vivendi* of 1892 is eliminated by comparing the same region to the south of the Aleutian Islands in that year and in 1891, likewise indicate that seals were more abundant in 1892 than before.‡

Respecting concurrent changes observable on the breeding-islands themselves, little can be added to the statements already made. The conditions in this respect, in 1892, appear to have remained very similar to those noted by us in 1891. As bearing upon these conditions, however, the following remarks by Mr. Macoun may be quoted. He writes: "There can be no doubt that immense numbers of seals resort to Behring Sea during the summer season that do not go to the islands at all, or, if at all, only very late in the season." §

(P.)—*Fur-seals breeding on the Southern Part of the North American Coast.*

To the facts given under this head in our Report, and those mentioned in paragraph 424 and elsewhere in the Report, some interesting additions can now be made. The Haycock, and other adjacent lonely islands and rocks near the northern part of Vancouver Island, to some of which allusion is specially made in the paragraph just referred to, were visited by Mr. Macoun in May 1892. The date was, unfortunately, too early to enable it to be definitely ascertained whether seals were resorting to these places to breed, but close along the shores of the Haycock Islands

* Report of British Commissioners, p. 207.
† British Counter-Case, Appendix, vol. ii, pp. 43–189
‡ British Counter-Case, p. 173.
§ Ibid., Appendix, vol. i, p. 145.

many fur-seals were seen, and other rocks in the same vicinity were found to be thickly covered with thousands of sea-lions. Places suited for the hauling out and breeding of the northern sea-lion, are well known in most cases to be, *mutatis mutandis*, equally suited for the fur-seal, and, as stated in our Report, there is good reason to believe that St. George Island, one of the Pribyloffs, was at one time chiefly inhabited by sea-lions.* Both on that island and on St. Paul Island, the sea-lion still breeds, in smaller numbers, on the same rookeries with the fur-seal. Additional information relating to the occasional taking at sea of fur-seals in milk, at various places lying off the coast of British Columbia and South-eastern Alaska, leads to the belief that young have in late years been brought forth at some places along these coasts. The most important evidence of this kind is summarized below:—

E. Lorenz.—"Last year [1891] I got female seals in milk off Queen Charlotte Islands in July. That makes me think there is a rookery there. This year I saw old bulls ('wigs') off Coronation Island, and there may be a rookery there."

W. Shields.—"Three seasons ago I caught seals off Kadiak Island with milk in their breasts, but with no pups in their wombs. I thought at the time that there must be a rookery ashore somewhere, and spoke of it at the time. I took two one day that were this way; this was about last of June."

Joseph Brown.—"When hunting off Kadiak, five years ago, I saw females in milk in May. They had dropped their pups somewhere—on Kadiak, I suppose."

G. C. Grow.—"I have found all along Queen Charlotte Islands females in milk who had dropped their pups. The most I ever saw was when on the 'Triumph' four years ago; in June we got seventy or more females in milk that had dropped their young."†

The formation, or attempted formation, of new breeding-places at various points from the Japanese islands northwards, which is subsequently referred to, is further of interest in this connection, as showing that the fur-seal, like other animals, is by no means averse to resort to new localities when the existing circumstances are found to be favourable, and may be directly induced to do so by reason of disturbance at the usual breeding haunts.

(Q.)—*Connection or Interchange of Seals between the Pribyloff and Commander Islands.*

In our Several Report, a short discussion of the connection or intermingling of seals between the Pribyloff and Commander Islands is given. The grounds are explained upon which it is believed that "the fur-seals of the two sides of the North Pacific belong in the main to practically distinct migration-tracts," but that, notwithstanding this general fact, "to a certain extent transfers of individual seals or of small groups occur, probably every year, between the Pribyloff and Commander tribes," such transfers being, however, "exceptional rather than normal."‡

Some evidence was also quoted respecting supposed slight differences between the skins derived from the two groups of islands, and it was stated in conclusion that it "appears to be probable that there is actually a slight general varietal difference as between the tribes frequenting the two principal groups of breeding islands," but that "the amount of interconnection between the two groups is doubtless, however, sufficient to prevent any very striking or permanent peculiarities even of a varietal rank to grow up."§

The maps appended to the Report show further the general conclusions arrived at respecting the distribution of the fur-seals at sea, in accordance with the data then available.

Since the time of the completion of our Report, a considerable amount of additional information bearing on this subject has been obtained, the general tendency of which, while not positively conflicting with the conclusions already outlined, is to show that the intermingling of the fur-seals of the eastern and western sides of the North Pacific, particularly when brought into relative proximity in Behring Sea during the summer, is even more frequent than had been supposed.

In our previous Report, as the existence of a certain amount of intermingling

* Report of British Commissioners, para. 274.
† British Counter-Case, Appendix, vol. ii, p. 23.
‡ Report of British Commissioners, para. 453. § Ibid., para. 456.

had never been questioned, it was not considered necessary to note in detail the evidence and the observations upon which the general statements made were based, but, in conjunction with the information since obtained, this becomes more important.

This information consisted, in the first place, of statements by pelagic sealers to the effect that, when crossing Behring Sea from the eastern to the western side, fur-seals were frequently seen by them in all longitudes; second, of our own observations and of inquiries locally made along the Aleutian chain.

While running to the westward north of, but near to, the line of the Aleutian Islands, though the circumstances were often unfavourable for sighting seals and long distances were passed by night, seals were actually seen by us approximately in the following positions :—

August 25.—North of Amukhta Island, longitude 170° west.

August 25.—North of Amlia Island, longitude 173° west.

August 28.—Near Attu Island, longitude 173° east (one seal).

August 30.—Midway between Attu and Commander Islands, longitude 171° east.

Further to the north, in the vicinity of the 60th parallel of latitude, occasional seals were met with at sea by Her Majesty's ship "Nymphe," and by ourselves in the month of September as far to the westward as 174° 30′ west.

We also ascertained from Mr. Grebnitsky, Superintendent of the Commander Islands, that fur-seals had been seen in 1880, 1886, and 1887 by Russian cruizers when shaping a course from these islands to Indian Point, as far north as the 60th parallel, and at about the intersection of this parallel with the 180th meridian. The position thus defined is within about 180 miles of that in which we ourselves saw the first seals at sea in approaching the Pribyloff Islands from the northward.

Information gathered on this subject in the Aleutian Islands, in 1891, may be thus summarized :—Mr. Newman, long connected with the fur trade, stated that the natives take a few fur-seals every spring and autumn at Attu and Agattu Islands (approximate longitude 173° east), and also at Kiska Island (longitude 177° 30′ east). Some fur-seals also occurred about Semisopochnoi Island (longitude 180°). A few are taken about Atka (longitude 173° 30′ west), a considerable number each autumn at Umnak Island (longitude 169° west), and at Unalaska (longitude 166° 30′ west).

Mr. Dirke, resident at Nazan Bay, Atka Island, stated that seals occasionally passed between Atka and Amlia Islands, going northward, and that pups were sometimes got there in November. His statements were confirmed by Chief Casian, also of Atka Island. Mr. Dirke also informed us that seals were sometimes seen at Attu Island, but that no pups were ever seen there.

Filarat Prokopief, native agent for the Alaska Commercial Company at Attu, stated that seals in small numbers were sometimes seen there in August, all full grown, and that the schooner "Allie Algar," which had called there in August 1891, reported finding plenty of seals off the Semitchi Islands (longitude 174° east).

It must be remembered, in considering these notes, that the line of the Aleutian Islands is the best known and most frequently traversed one between the two sides of Behring Sea. The few trading voyages made are chiefly along this line, while whalers entering Behring Sea generally do so too early to make any observations on seals, and are far to the north before the seals arrive there. The contingency of any vessel making a voyage from the vicinity of the Pribyloff Islands to that of the Commander Islands at any season is very rare, and what evidence can be obtained for the region traversed on such a voyage, is chiefly that of sealing vessels in late years.

Inquiries specially made in 1892, among pelagic sealers who have traversed Behring Sea, or the North Pacific to the south of the Aleutian Islands, in search of seals, have, however, resulted in the accumulation of some valuable notes on the subject here particularly under discussion, as well as on that of the general distribution of seals at sea at various seasons. These facts appear to us to be in effect such as to show, not only that the fur-seals born upon or normally resorting to the Pribyloff and Commander Islands intermingle, and to some extent interchange, every year; but also such as to prove that the fur-seals of the North Pacific generally, from the latitude of Behring Straits southward to that of the Sandwich Islands, are never rigorously separated into groups frequenting the Asiatic and American sides of that ocean respectively. It must be remarked, however, that these new facts cannot be considered as impugning the general accuracy of the migration chart accompanying our original Report, for all the information since gained goes to substantiate its indications as regards the *main bodies of seals* which resort to the several breeding-islands. The facts since obtained do, however, prove that a certain number of seals are met with in every

year far beyond the limits there set down. These may be considered as exceptions to the general rule of the migration, but constitute exceptions so important in themselves as to require special consideration. The further circumstance that the coition of the fur-seal at sea must now be considered as well established, taken in connection with the new evidence as to intermingling, is such as to show that this intermingling implies interbreeding, even apart from the interchange of seals from island to island; and such interbreeding further explains the want of any constant difference as between the fur-seals resorting to the various islands, though it is not inconsistent with the existence of average differences of an observable, though slight kind, between the seals frequenting the several islands.

Beginning at the north, the new evidence collected in 1892 shows, on the authority of Captain A. C. Folger, that fur-seals have exceptionally been taken in the vicinity of Behring Strait, and even to the north of East Cape, which forms the western side of that strait. The facts noted in our previous Report showed the exceptional occurrence of such seals in the vicinity of St. Lawrence Island and at St. Michael's, on the American side, but the line marking the extreme range of the fur-seal on our Map No. II now requires to be moved northward to Behring Strait. It is, of course, impossible to determine whether the seals occasionally found in this region arrive there from the direction of the Commander or from that of the Pribyloff Islands.

Respecting the main area of Behring Sea, the evidence obtained from those sealers who had crossed through that sea from the American to the Asiatic side, during the summer months, is to the general effect that seals are seen every fine day during the voyage.* A synopsis of this evidence is contained in the Counter-Case presented on the part of Great Britain. At least twelve experienced sealers concur in statements of this kind. A certain number of sealing-vessels have, moreover, crossed from the American to the Asiatic side of the North Pacific south of the Aleutian Islands, and therefore outside Behring Sea. This was more particularly the case in 1892, when the provisions of the *modus vivendi* then in force between Great Britain and the United States, deterred sealers from entering Behring Sea, even for the purpose of making the passage to the Asiatic side. Some of the sealers likewise returned to the American side, to the south of, but not very far from, the Aleutian Islands. The observations of these men conclusively show that fur-seals are to be found both in summer and autumn in every longitude in this part of the North Pacific. The log of the "Umbrina" notes the actual capture of seals, in July, in approximate longitudes 171° 30′ west, 177° west, and 177° east, at considerable distances south of the Aleutian Islands.†

Other sealers, who had been engaged in sealing for a part of the season to the south of the Commander Islands, on their return voyages in the autumn made courses either direct to Victoria or to San Francisco, and their evidence again shows that seals in small numbers were seen all the way across the ocean on such courses.

On voyages made from Japan to the Strait of Fuca, at different times, sealers and others have noted fur-seals at various places across the whole width of the North Pacific, and a reference to Mr. Macoun's Report will show, that the schooner "Mary Taylor" was sent by a firm interested in sealing in Victoria, to seek for seals in the latitude of the Sandwich Islands, in winter, and that seals in considerable numbers were observed by her captain there in the months of December and January.‡

Captain A. C. Folger likewise testifies that he noted fur-seals in large numbers near Midway Island to the north-westward of the Sandwich Islands.

It is thus conclusively shown that, though the main bodies of seals frequenting the Pribyloff and Commander Islands generally follow the migration-routes outlined in our previous Report, no part of the North Pacific from about latitude 25° north to Behring Strait is unvisited by seals at certain seasons and in lesser numbers; and that, in all the central parts of the ocean at least, it is absolutely impossible, in the light of any information at present available, to decide whether such seals resort at the breeding season to the Pribyloff Islands, to other known rookeries, or, in lesser numbers, to various unknown breeding resorts on both sides of the ocean. The circumstances are, in fact, such as to render the actual breeding resorts of seals thus met with a matter of pure conjecture.

Further information, bearing directly on the relations of the fur-seals resorting to the Pribyloff and Commander Islands respectively, has been obtained from experienced fur-dealers, who have been accustomed to handle and examine large

* British Counter-Case, Appendix, vol. ii, pp. 23–27.

† Ibid., p. 188.

‡ Ibid., vol. i, p. 136.

numbers of skins from both places every year. These gentlemen are almost unanimous in stating that, by means of slight differences of texture or colour of fur, they are able to separate the skins from the Pribyloff and Commander Islands in the gross. Such differences are very difficult to describe or specify, but practice has rendered experts proficient in detecting them. They are of importance in the trade because of the different prices given for the skins, which doubtless correspond with a practical difference in utility or durability.

The principal element of uncertainty in such a classification as that of fur-dealers, above referred to, arises from the probability that, to some extent, the differences they observe may be due to different modes of handling and curing the skins on the respective groups of islands. We have already pointed out that in former years, and perhaps even now, greater care has been exercised on the Pribyloff Islands in this respect, and this is fully borne out by the evidence of dealers.* Differences of practice also occur on the respective islands in regard to the average size of skins taken from time to time. Both these circumstances must have a direct influence on the market value of the skins.

Another element of uncertainty depends on the season at which the larger part of the catch is made in each case. The colour of the coat of the seal undoubtedly changes somewhat when it remains for any considerable period on land, and, from analogy with other animals, such change would be expected to be most marked where the sun is least frequently obscured. Again, skins taken when the "stagey" season is approaching must differ from this cause alone from those taken earlier in the season, on either group of islands, and would undoubtedly possess a relatively smaller value.

Making allowance for such elements of uncertainty, however, there appears to remain sufficient evidence to prove a certain general aggregate difference of a perceptible kind in the pelage itself. The fact that experts in the business are able thus to distinguish lots of skins from the Commander and Pribyloff Islands in the gross is, however, found to lead up to a further and very important point in connection with the question of intermingling which is here discussed. A number of these experts go on to explain† that in the lots coming from either group of islands, skins frequently occur which are identical in character with those from the other, and that in certain shipments these skins are found to constitute a considerable proportion of the whole number. Some of the experts state that the proportion of skins indistinguishable from those derived from the other group of islands, in each case, in some years rises to 15, 20, 30, to 40 per cent. of the whole number.‡

It thus becomes possible, to utilize the special knowledge of the fur-dealers in respect to the skins from these two sources, as a further proof of the intermingling and interbreeding, which has already been rendered evident on independent evidence of an entirely different kind; and it may even be assumed, that the percentage proportion of exceptional skins met with, affords some index of the amount of such intermingling and interchange.

The facts thus brought together are, moreover, found to be entirely in accord with the general conclusions in respect to variation in animal forms and the distribution of specific and varietal forms which have been arrived at by naturalists. To illustrate these it may be pertinent to quote Mr. A. R. Wallace, who writes to the following effect:—

"The well-known fact that some species are very common, while others are very rare, is an almost certain proof that the one is better adapted to its position than the other; and this belief is strengthened when we find the individuals of one species ranging into different climates, subsisting on different food, and competing with different sets of animals, while the individuals of another species will be limited to a small area beyond which they seem unable to extend. When a change occurs, either in climate or geography, some of the small and ill-adapted species will probably die out altogether, and thus leave room for others to increase or for new forms to occupy their places.

* * * * * *

"*The Amount of Variation in North American Birds.*—An American naturalist, Mr. J. A. Allen, has made elaborate observations and measurements of the birds of the United States, and he finds a wonderful and altogether unsuspected amount of

* Report of British Commissioners, para. 455.

† British Counter-Case, Appendix, vol. ii, pp. 237, 239, 243, 244, 246, 249, 250.

‡ T. S. Jay, 25 to 30 per cent. average; J. Politzer, sometimes 30 to 40 per cent.; O. Eysoldt, 25 to 30 per cent.; H. Friedeberg, 20 to 40 per cent.; H. Creamer, 15 to 20 per cent.; S. Apfel, some years 33 per cent.; H. S. Bevington, 25 per cent.; H. Poland, not more than 30 per cent.

variation between individuals of the same species. They differ in general tint and in the markings and distribution of the colours; in size and proportions; in the length of the wings, tail, bill, and feet; in the length of particular feathers, altering the shape of the wing or tail; in the length of the tarsi and of the separate toes; and in the length, width, thickness, and curvature of the bill. These variations are very considerable, often reaching to one-sixth or one-seventh of the average dimensions, and sometimes more. . . . . All the variations here mentioned occur between adult males, so there is no question of differences of age or sex, and the pair last referred to were taken at the same place and on the same day.

* * * * * *

"But sometimes a species has a wide range into countries which differ in physical conditions, and then it often happens that one or other of the extremes will predominate in a portion of its range. These form local varieties; but, as they occur mixed with the other forms, they are not considered to be distinct species, although they may differ from the other extreme form quite as much as species often do from each other.

"*How new Species arise from a variable Species.*—It is now very easy to understand how, from such a variable species, one or more new species may arise. The peculiar physical or organic conditions that render one part of the area better adapted to an extreme form may become intensified, and the most extreme variations thus having the advantage, they will multiply at the expense of the rest. If the change of conditions spreads over the whole area occupied by the species, this one extreme form will replace the others; while, if the area should be cut in two by subsidence or elevation, the conditions of the two parts may be modified in opposite directions so as to be each adapted to one extreme form; in which case the original type will become extinct, being replaced by two species, each formed by a combination of certain extreme characters which had before existed in some of its varieties."*

The absence of constant differences as between the fur-seals inhabiting different parts of the North Pacific, with the existence of slight differences in the average of large numbers in different places, is a fact just such as might be predicated from analogy with other animals, belonging in the main to two or more generally distinct migration-tracts, but between which no physical or climatic barriers have arisen. Did such a barrier exist, the differences might become constant, and well-marked local varieties or distinct species might eventually come into existence.

The subject above specially considered, naturally connects itself with that of the migration and distribution at sea generally of the fur-seal, and the new light obtained adds considerably to our knowledge of details upon these points.

(8.)—*Breeding-places and Resorts of the Fur-seal on the Western Side of the North Pacific.*

In addition to the few notes bearing particularly on the migration of the fur-seal on the western side of the North Pacific, information obtained in 1892 from various sources, seems to show that on this side of the North Pacific, these animals have in late years begun to resort to several new stations at the breeding season. The principal facts under this head, in addition to those mentioned in our previous Report, may be given in summarized form as follows:—†

Captain E. P. Miner (of Seattle, United States).—"The next year, 1882, I sailed from Yokohama in the schooner 'Otome' otter-hunting to the Kurile Islands. The year before that Captain Snow [of Yokohama] had found a new rookery on Shred-noi Island, and in 1882 we went there and camped ashore; there were eight schooners of us. I do not remember exactly how many seals we got then, but know that there were 1,000 in the first drive. A rookery had been found on Moo-shir Rocks the year before, and we worked both rookeries that summer. . . . In 1883 I went in the schooner 'Otsego,' of Yokohama, sea-otter and seal hunting, but we wanted particularly to find a rookery in the Japan Sea. I was mate and navigator. We were looking for the Waywoda Rocks, on which seals had been reported to haul out, but these rocks, I believe, do not exist. We found seals, however, on the Bittern Rocks, 14 miles off north-west coast of Nipon Island. . . . . [In 1881] we landed on two small islands to the northward of Karaginski, and

* "Island Life." A. R. Wallace, Second Edition, 1892, pp. 56–60.

† British Counter-Case, Appendix, vol. ii, pp. 34, 35.

though we found no fur-seals, we found a great many skeletons and skulls ashore there; the skulls were all broken up as if they had been clubbed. . . . In 1884 we went from Karaginski Island to Yokohama, getting a few seals on the Moo-shir Rocks. . . . In 1885 I went out as master of the 'Penelope,' and discovered a new rookery on Raikoke Island, one of the Kurile group. We got about 3,500 skins there. . . . In 1886 I was again master of the 'Penelope,' and visited Raikoke Island, Moo-shir Rocks, and Shred-noi, but got only about 500 seals."

Captain A. C. Folger (of Victoria).—"Besides the rookeries on the Commander Islands and Robben Reef, I know of hauling-out places—not rookeries. One place was a little island called Raikoke, right in the middle of the Kurile group. Vessels went there every year sea-otter and sea-lion hunting, but no seals had ever been seen there; but in 1886 [1885], when on the 'Penelope,' Captain Miner, we were surprised to find thousands of seals hauled out there. I had been at this place for the three previous seasons; there must have been 12,000 or 15,000 seals—among them 700 or 800 pups. We took 4,000 skins, and had not salt to cure more. . . . Captain Snow, in 1879 I think it was, found seals on Moo-shir Rocks. I and all the other hunters had been there the year before and other years, but never saw seals. . . . I know from the experience I have had that it is a common thing for seals on that side to haul out on new grounds, and every schooner always made a point of stopping at every barren rock to have a look for seals."

William Hermann (of San Francisco) states that two years ago (1890) he was in the Okhotsk Sea, and his schooner got 283 seals on the Island of St. Iona, and, altogether, 700 seals were got there that year by three schooners; and last year he was there and got 551 in the schooner "Arctic." These were got hauled up on the rocks, and were first discovered by Captain Pine, of the "Arctic," in 1889. Eight years ago Captain Petersen, of the schooner "Diana," of Yokohama, was there, and there were no seals there.

S. L. Beckwith (of San Francisco) says: "I remember there was a seal rookery on Ketoy Island, one of the Kurile group; that was about 1873 or 1874. I have been there since, and they are all destroyed."

Warren F. Upson (of San Francisco).—"Commenced killing fur-seals as a business about thirteen years ago. . . . Was otter-hunting, principally among the Kurile group, up to the time I commenced seal-hunting, and was as familiar with all the islands of the group as I am with the streets of this city, from Cape Nogshof to Kamchatka, and know that there were no rookeries at that time on those islands. I know Raikoke, Moo-shir, and Shed-noi Rocks, and to my knowledge there were no rookeries on them during my otter-hunting days, but I have learned since that Captain Miner has taken a large number of seals on some of those rocks."

Adolphe F. Carlson (of San Francisco).—"I hunted otter along the Kurile Islands from 1872 till 1883, and know that up to 1879 there were no rookeries on Raikoke Island on Moo-shir Rocks, and seals up to that time never hauled up on either of these islands to breed, but I learn they were found there in 1880 or 1881."

Frederick Crocker (of San Francisco).—"I first hunted among the Kurile Islands in 1881, and found rookeries on the Shed-noi and Moo-shir Rocks and Raikoke Island, and we made good takes, but cannot say now exactly how many; that year I was in the 'Diana,' sailing from Yokohama."

It may be interesting to mention that in the years above specially referred to, in which the occurrence of new rookeries was noted, the seals upon Robben Island were being almost continuously harassed by raids, and it is therefore probable that a direct connection may obtain between the one circumstance and the other.*

Pelagic Sealing.

(C.)—*Proportion of Seals lost.*

Further efforts have been made to obtain trustworthy data on this point, and the result seems to show, if possible more clearly than before, how baseless or how much exaggerated are the statements attributing great losses at sea to the sinking of the body of the seal after it has been killed, and before it can be recovered. It must be borne in mind that the hunter, and, to a less extent the boat-steerer and boat-puller in each boat employed in sealing, are remunerated in proportion to the number of

* British Counter-Case, Appendix, vol. ii, pp. 113, 88, 127.

skins secured. That at best but a few seals are killed every day by a boat, and that consequently no reasonable pains or efforts will be spared in securing these.

Many additional general statements have been obtained on this particular subject, but more important than these are actual numerical statements relating to the number of seals shot and secured, or shot and lost. Pursuant to our request, many of the pelagic sealers in 1892 made written records at the time, of the numbers secured and lost by them individually. With the aid of these records, the proportion lost in the course of taking 39,879 seals has been ascertained in 1892. The data have been arranged in a tabular form,* and the resulting average loss on this large number proves to be but 3·1 per cent. Adding to this the results of the inquiry made by us in 1891, on the same numerical basis, we are now able to account for the total losses in taking nearly 50,000 seals at sea by shooting with the gun in the ordinary manner; the average loss by sinking in this large number amounts to 3·2 per cent.

The figures here quoted refer to white hunters. All information goes to show that the losses by Indians, when using the spear, are practically *nil*, and when using the shot-gun, as small, if not smaller, than those of the white hunters under the same conditions. The spear is now, however, employed, even by Indians, to so small an extent that it may be omitted from consideration for all practical purposes.

In continuing investigations relating to pelagic sealing in 1892, care has furthermore been directed to ascertaining, as far as possible, all other sources of loss. It is, for instance, certain, that some seals being merely wounded when shot at, manage to escape and subsequently die of their wounds. Results of this kind must, to a greater or less extent, ensue in the case of any wild animal which is hunted. As it is manifestly impossible to secure precise data as to the numerical importance of such losses, their occurrence affords an excellent opportunity for exaggerated statements on the part of any one anxious to attribute destructive results to the hunting of seals at sea.

The remarks already made on the subject of the direct interest of the hunters in securing the seals are sufficient to show that no careless shooting will be indulged in when a seal is sighted. In reply to questions put to pelagic sealers, much information of a kind as precise as it is possible to obtain, has been gathered on the subject here noticed. This will be found summarized in one of the Appendices to the British Counter-Case.† An examination of this evidence, and the detailed affidavits from which it is derived, will serve to show not only what measures are taken in endeavouring to secure seals which may be wounded, but also that the number thus lost, at the most, must be very small.

We have already pointed out in our Report, that the waste of seals upon the Pribyloff Islands, resulting from one or two acknowledged causes represented by official figures, for the past nineteen or twenty years, has during these years averaged not less than 7 per cent. of the entire number of seals killed of which the skins were utilized.‡ We have further shown, that other incidental causes of loss involved in the actual methods of killing seals upon the islands, not included in any statistics, must materially increase this percentage of loss. The conclusion is that "the actual percentage of wastage in securing the annual quota of skins since the Alaska purchase thus remains undeterminate, but must have been great. It is believed to have reached 10 per cent., and may well have reached 20 per cent. on the whole number of skins accepted."§

The loss of seals when killed at sea has evidently decreased in proportionate amount in late years, in consequence of the increased skill of the hunters, and the more effective methods of securing wounded seals or the bodies of those which begin to sink. One of the chief causes of this improvement is to be found in the substitution of the shot-gun for the rifle, which is at present almost complete. This necessitates a close approach to the seals, and, besides, removes any temptation to random shooting. Information obtained on these special points will be found summarized in the Counter-Case, and should be referred to in order to appreciate its character.‖

Considering only the later years, during which the methods of pelagic sealing

* British Counter-Case, Appendix, vol. ii, pp. 4–6.

† Ibid., pp. 11–13.

‡ Report of British Commissioners, para. 74.

§ Ibid., para. 75. Statements made by Messrs. Bryant and Maynard as to the number of seals actually *killed*, in the earlier years of the Alaska Commercial Company's lease, show that in these years at least 11 per cent. of the seals killed were not accounted for in skins shipped. (See "Monograph of North American Pinnipeds," p. 410, 44th Cong., 1st Sess., H. R. Ex. Doc. No. 43, p. 6.)

‖ British Counter-Case, pp. 11–13.

have been thus brought to a high state of perfection, it appears probable that the whole loss of seals at sea, due whether to the sinking of the body or the escape of wounded seals, must be considerably less than that shown in official figures as representing the admitted waste upon the breeding islands.

The other and no doubt more serious sources of loss upon these islands (including particularly driving and disturbance resulting in change of habits, the reduced proportion of virile males, raids, &c., detailed in our previous Report) are, of course, not susceptible of precise statement or of numerical treatment; but the result of a comparison between the methods of taking seals at sea as actually practised, and on shore as practised before the *modus vivendi*, are such as to show that the waste resulting from skins lost or not utilized must be considerably greater on shore.

(D.)—*Composition of Catch.*

Under this heading, in our original Report, was given such information as had been acquired respecting the relative proportions of fur-seals of different sexes and ages taken by pelagic sealers in different parts of the North Pacific. In the course of inquiries pursued in 1892, when information was sought from all hunters or others engaged in sealing who possessed any considerable degree of experience, and could be reached, much additional information respecting the proportion of young and old males, breeding and barren or virgin females, and grey pups of both sexes, has been collected. This is given at length in the various affidavits and statements appended to the Counter-Case,* and in summarized form on other pages of the same volume.†

In reviewing the new evidence, remarks similar to those made in connection with the less considerable amount of testimony available when our original Report was written are appropriate. The statements given differ very widely in many instances, but no assumption of their inaccuracy is established by this fact. Much depends in each case on the particular region in which the catch of any particular sealing-vessel was in each season principally made. It must further be remembered, that it is only within the last few years that any particular attention has been given to the proportion of females relatively to males in the pelagic catch. Testimony obtained from numerous fur-dealers accustomed to handle and examine the skins of fur-seals, is to the effect that the question of sex has never been considered by them, as it is not taken into account in the valuing of the skins or in their classification for purposes of sale. It has followed from this, that, when local merchants on the west coast of North America have bought cargoes of skins, they have paid no attention to the question of sex, and, further, for the same reason, the sealing captains and hunters have had no reason to note the number of skins derived in each case from seals of different sexes. It has, however, resulted from the statements persistently made in certain quarters, to the effect that much the greater part, if not nearly the whole, of the pelagic catch is composed of females, that more attention has in late years been given by hunters and others to this subject. Notes have been made by such men as to the composition of their catch, and it has become possible to obtain from them reasonably accurate statements on this subject.

The statements thus collected are given in the places above cited, and many of them undoubtedly go to show that the pelagic catch has comprised in the years referred to a considerable proportion of female seals. It is unnecessary, however, to offer any apology for this fact. It must, in the first place, be remembered that a large proportion of females is killed by man in the case of all animals, even those which are domesticated and in every respect fully under his control, as with cattle, sheep, pigs, or deer, and that such killing is not only compatible with economic conditions, but is actually required in order that the proper conditions may be preserved. Thus no statement can be substantiated which rests upon the proposition that the killing of a certain number of female seals is in itself reprehensible.

In the second place, it is obvious that the killing of all young males which it has been possible to secure on the breeding islands during a long term of years, has of late resulted in leaving a great excess of females, not only in numerical proportion to the males, but also, and more particularly, in proportion to the capacity of the males fit for service in breeding. A comparison of the statements made by sealers, in fact shows that in recent years the proportion of females taken at sea has increased, but that in 1892, as a direct result of the cessation of excessive slaughter of males upon the Pribyloff Islands, it has again decreased.† No reasonable demand can therefore be made,

* British Counter-Case, Appendix, vol. ii.

† Ibid., pp. 14–22.

by those who have caused the scarcity of male seals on the breeding islands, upon the pelagic sealers to curtail the exercise of their legitimate industry upon the high seas because more females than was formerly the case are included in their catch.

It must further be remarked, that the observations made in respect to their catches by pelagic sealers are quite sufficient to disprove some very exaggerated statements which have been made respecting the actual proportion of females taken at sea. Statements made on this subject, as the result of the examination of lots of salted or undressed skins, must be accepted under great reserve, for almost all those who are accustomed to handle the seal-skins in these conditions, when questioned on the point, readily admit that they are able to distinguish the sex with certainty only in the larger skins. The circumstance thus alluded to by fur-dealers is quite in accord with observations made by ourselves, and is, in fact, borne out fully by the physical conditions which renders it impracticable in skins to recognize, by the genital organs or other marks, the sex of seals below the age of about 3 years.

If additional proof be required in support of the statements thus made, it is supplied, and in the most complete manner possible, by the Table contained in one of the Appendices of the British Counter-Case,* in which an analysis is given of practically the entire pelagic or "North-west" catch for the past twenty years. A discussion of the Table† shows, that the proportion of skins *large enough* to be those of bearing females contained in this catch cannot have exceeded 25 per cent. The discussion just referred to is, for the sake of argument, based on the assertion put forward by the United States, to the effect that but 15 per cent. of the pelagic consists of male skins, and also on the assumption that this 15 per cent. occurs evenly throughout the whole bulk. As a matter of fact, the proportion can be shown to be much too small. About 20 per cent. of the skins taken are *too large* to be those of females of any kind. If, therefore, this proportion be deducted from that already admitted to consist of skins large enough to be those of gravid females, this *possible* proportion of such females in the whole catch for the past twenty years is reduced to about 19 per cent.

The statements obtained from sealers also afford much valuable evidence respecting the proportion of gravid females included in the pelagic catch, and the places and seasons at which such females are taken. While it is undoubtedly lawful to take even gravid females at sea, and although general provisions to prevent the taking of such females would to a considerable extent curtail the operations of pelagic sealers, it is believed that, on strictly economic grounds, such provisions should be specially made in any general scheme of Regulations which may be agreed upon. But it is, at the same time, manifest that any curtailment of legal rights of fishery thus agreed to in the common interest of the fur-seal fishery, must be given due weight and considered as justifying and demanding similar concessions in respect to the number of seals killed upon the breeding islands. Regarded in the light of equivalency of interests in the common basis of the sealing industry, it should not, in our opinion, be difficult to arrive at a compromise between such interests, of mutual benefit, founded on principles of equity, which shall include among its provisions such arrangements as may practically prevent any useless or wasteful method of killing seals, whether by sea or land. As we have already, in our former Report, outlined measures which conform with those requirements,‡ it is unnecessary here to follow this subject at greater length.

(E.)—*Future of Pelagic Sealing Industry.*

Under this head, we have pointed out that the initiation and growth of this comparatively new industry, has necessarily changed the basis upon which regulations have been in former years considered, when the only known method of taking seals was that of killing these animals upon their breeding islands. We have also shown, that because of the necessarily self-regulative character of sealing at sea, in consequence of which voyages for sealing must cease to be remunerative long before any serious scarcity of seals at sea supervenes, it is commercially impossible to exterminate the fur-seal, if only the breeding resorts of the animal be held inviolate. A number of competent authorities suggest, as the obvious method of protecting the fur-seal, the cessation of all killing on the breeding-islands, and the proper protection of these

* British Counter-Case, Appendix, vol. ii, pp. 257, 258.
† British Counter-Case, pp. 200–210.
‡ Report of British Commissioners, paras. 146–170.

islands in the common interest. Amongst others the following may be particularly referred to: Judge J. G. Swan,* George Dishow, William O'Leary, Colin Locke, Ernest Lorenz, August Reppen, A. C. Folger, Henry Paxton, W. Hermann, George Scott, Milton Scott, John Worth, W. O. Shafter, John Figuera, and N. Hodgson.†

Experience gained in 1892, serves to confirm the ideas expressed in our former Report. With a close restriction of killing upon the islands, the number of seals at sea has absolutely increased, while under the provisions of the *modus vivendi* of 1892, by which sealing-vessels have been completely excluded from Behring Sea in that year, though the number of vessels has increased, the aggregate catch has diminished. When the season of sealing to the south of the Aleutian Islands closed, the vessels either returned to their home ports or made long voyages to the Asiatic side of the Pacific, where catches smaller than those usually made in the eastern part of Behring Sea in the later summer months were obtained. As a consequence of this fact, the automatic principle of regulation of pelagic sealing, which must be obvious to any one examining the circumstances, has already begun to manifest itself. The sealing fleet, which has continued to grow from year to year, will in all probability be diminished in number rather than increased in 1893.

Control and Methods of Sealing on the Pribyloff Islands, their Nature and Results.

The subject included under the above general heading was treated at some length and under several subordinate heads in our original Report. The historical aspects of the subject were taken up, and reference was made as far as possible to all the published Reports and documents which threw light upon it. There is thus little to be added at the present time to what was then said, beyond notice of observations in 1892, and reference to the Table since completed, in which a rigorous analysis has been made of practically the entire number of skins taken from the islands during the period of United States' control.

The general conclusions arrived at, from a study of the available data respecting the management of the Pribyloff Islands since these islands passed under the control of the United States, to the effect that the methods of management were exceedingly imperfect both in conception and in execution, more particularly in the matter of the extremely high number of young males allowed by law to be killed each year, are fully borne out by the observed improvement of the conditions on the islands, which, as already explained, has immediately followed the change in methods and the reduction in number of seals killed consequent on the arrangements for a *modus vivendi* in each of the years 1891 and 1892.‡ The conclusions derived from a study of the recorded facts has been substantiated by the new experiment thus practically enforced.

Though the number of seals killed in 1892 was very small, the driving and killing of these afforded Mr. Macoun ample opportunity of noting in detail the injury inflicted upon the seals in the process of driving. It is unnecessary to quote the painful record of the facts of this kind which actually came under his observation, as these are detailed in his Report, which appears in one of the Appendices of the British Counter-Case.§

It is sufficient to state here that, even under the circumstances of the much restricted killing of 1892, the number of seals driven to the killing-ground for the purpose of selecting those to be killed for skins, was vastly greater than that of the seals actually killed, and that many of the seals thus turned away, after being subjected to all the inherent cruelty and the injurious effects of driving already pointed out by us, were actually cut or wounded in various ways. The observations thus made serve to show how large the unrecorded death-roll must have been, when over 100,000 seals were killed, and countless multitudes were driven to the killing-grounds, and in many cases repeatedly driven there, in the process of securing the "quota."

Some further evidence has been obtained in respect to the frequency of raids upon the islands, and the facility with which, in consequence of the wholly inadequate protection afforded by the United States' Government, such illegal and highly injurious

* Report of British Commissioners, Appendix, p. 177.

† British Counter-Case, Appendix, vol. ii, pp. 58, 59, 72, 73, 80, 89, 92, 118, 120, 123, 124, 125, 137.

‡ Page 22.

§ British Counter-Case, Appendix, vol. i, pp. 152–153.

onslaughts on the seal life of the islands have been made.* When it is shown, on the sworn evidence of men who were concerned or took part in such raids, that two schooners anchored to the northward of St. Paul for nearly the whole of the summers of 1881 and 1882, raiding the islands whenever the weather permitted a landing to be made, it can no longer be maintained by any impartial person that the protection of the breeding-islands has been in any sense satisfactory.

In regard to the matter of the gradual reduction in the standard size of skins taken on the Pribyloff Islands, which in the earlier years of its occurrence may have passed completely unnoticed on the islands, but of which evidence is actually found in the published records, as pointed out in our original Report,† the Table referred to above affords the most complete and unequivocal evidence. While it may be difficult to meet general statements, or statements based on the proportion of large and small skins, based on individual takes of skins obtained on or shipped from the islands, it is impossible to traverse the evidence derived from practically the whole number of skins conveyed to market from the Pribyloff Islands during the past twenty years. It has been, for obvious reasons, a somewhat difficult and tedious matter to look up and analyze the trade shipments of skins for this long period, but this has been done by Messrs. R. P. Poland and Son, the well-known fur merchants, and the results obtained have fully justified the trouble taken by these gentlemen. The results, in fact, not only confirm the general conclusions respecting the deterioration of the sealing interests of the Pribyloff Islands during the period of their control by the United States; they also enable these conclusions to embrace practically every year of that control, and afford a complete record and check of the actual nature of the killing in regard to the size of skins, for all these years.

It must be understood, that for the purposes of classification for sale, each individual skin is measured on its arrival at market, and that the Table and the diagram based upon it, thus represent the careful examination as to size of each such skin, and include no less than 1,741,372 skins. The only irregularity attaching to the Table is that resulting from the fact that a certain proportion of skins taken in one year has at times been delayed or held over for sale to the next, in consequence of which the whole number of skins sold does not exactly correspond with the whole number taken in each particular year. This, however, affects only the comparative number sold in contiguous years, and as the facts evidenced by the Table do not require, for any present purpose, to be definitely attached to single years, this in no way affects its usefulness or its general meaning.

In order properly to appreciate the meaning of this Table, or that of the diagram based upon it, these should be examined in connection with the Table given in our previous Report of the number of seals killed each year on the Pribyloff Islands;‡ while the notes on the condition of the rookeries in the corresponding years should also be consulted.§ The larger number of large-sized skins obtained in 1876 and 1877, is thus found to be directly connected with a reduction in the whole number of seals killed on the islands in these years, which doubtless admitted of the selection of a better grade of animals for killing. In 1889, the proportion of small to large skins became 79·59 of the whole. Previous to 1881 the proportion of small skins had never reached 50 per cent. In that year it slightly exceeded that amount, and, except in one year (1885), it never afterwards fell below 50 per cent. till 1892.

The extraordinary measures taken to secure the "quota" in 1889, and the great number of very young seals killed in that year, have already received notice in our previous Report, the statements there made being entirely independent of the facts disclosed by the Table subsequently compiled.‖

The increased proportion of large skins in 1890, again corresponded with the reduced killing upon the islands in that year (21,857). In 1891, though killing on the islands was again reduced (to 12,071), the percentage of small skins slightly rose, but in 1892, when the killing on the islands was under the *modus vivendi* of that year still further reduced (to 7,500) a very marked improvement in respect to the average size of the skins occurred.

The improvement in size temporarily occurring in 1885, alone remains unexplained by known facts respecting the history of operations on the islands. It may possibly indicate the result of one or more years specially favourable to the seal from climatic or other natural causes, which, superposed on the results of the practices upon the

* British Counter-Case, Appendix, vol. ii, pp. 41, 42.
† Report of British Commissioners, paras. 694–701.
‡ Ibid., para. 771, and Diagram V.
§ Ibid., paras. 775–833. ‖ Ibid., para. 698 *et seq.*

islands themselves, has more than counteracted the general tendency of these towards reduction.

It has been stated on a previous page that, in regard to the younger seals, the separation of the sexes by means of ordinary inspection upon the hauling- or killing-grounds becomes very difficult. This is shown by evidence quoted in our previous Report, and it is also there shown that when the sizes killed were allowed, as in 1889, to be so far decreased as to include 2-year-old seals, and even large numbers of yearlings,* no guarantee existed against the killing of a considerable proportion of females upon the islands. The presumption was thus established that, notwithstanding assertions to the contrary effect, a certain proportion of females has been killed upon the Pribyloff Islands, at least in late years.

It is also found, that the most experienced fur-dealers deny the possibility of separating the sexes by means of an examination of the cured skins, in the case of the smaller sizes of these skins. In the course of inquiries lately made among fur-dealers, it has, however, been ascertained that even among the skins of these larger sizes in which they are able to distinguish traces of sex a *small but increasing percentage of female skins has been noted by them in the catch made on the Pribyloff Islands.* Skins of this class were first noticed by the trade in Pribyloff (Alaska) consignments in 1878 (G. Rice). They were observed by several dealers as early as 1883 (W. C. B. Stamp, S. Apfel, A. Allhausen), and since their first appearance have gradually increased in number till 1889 or 1890, when they reached 10 or 15 per cent. according to some authorities.†

It is thus shown, that the increasing scarcity of males upon the Pribyloff Islands, consequent on the excessive killing of that sex, not only led to the lowering of the standard size of skins taken, but that when this failed to enable the "quota" to be secured, a certain number of females was killed to make up this "quota."

During our visits to the Pribyloff Islands in 1891, no admission to the effect that any females were included in the catch could be obtained from any of the Government or Company's officials, with whom, in fact, the theoretical assumption that large numbers of males might be killed without impairing the condition of the breeding-islands, has throughout been the ruling principle of such regulations and restrictions as have been enforced. The skins taken upon the islands must, however, be marketed, and the evidence obtained at the point of sale, clearly shows that those who have had the management of the islands have been mistaken in their statements.

There is indeed no reason to believe that the Company leasing the islands, particularly in the years when the close of their term was approaching, would hesitate to fill the "quota" allowed by law in any way possible. The actions of the Company, referred to in our former Report, in respect to the barbarous attempt at one time made to extirpate the seals upon Robben Island, and the fitting out of vessels provided with nets for the purpose of intercepting seals in the eastern passes of the Aleutian Islands,‡ are alone sufficient to show that no regard for seal life as such, was allowed to enter into the question of the profits to be obtained.

Number of Fur-seals killed upon the Pribyloff Islands.

Under this heading of our original Report, it may now be added, that the statistics of killing for 1870 are very unsatisfactory. Those quoted for this year in the Table given on p. 132 of that Report, are official figures made up in the following year, and very probably from imperfect information. This appears to be the case, from the statement of Captain Bryant, to the effect that 85,000 seals were actually killed in that year,§ which is borne out by the Report of General Jefferson Davis to the Secretary of War,‖ in which he says that at least 85,000 seals were killed in that year. If the numbers thus stated be accepted as accurate, the diagram (No. V) in our Report, evidently requires modification in respect to this year, and the continuous aggregate of excessive killing during the earlier years of the control of the islands by the United States is shown more fully than by that diagram.

It may further be added, in the same connection, that the diagram does not

* British Commissioners' Report, para. 698.

† British Counter-Case, Appendix, vol. ii, pp. 230–253.

‡ Report of British Commissioners, paras. 513–514, 656; British Case, Appendix, vol. iii ("United States No. 2"), p. 356; British Counter-Case, Appendix, vol. ii, pp. 89, 113.

§ Report of British Commissioners, para. 810. ‖ Dated August 20, 1870.

include, for the year 1868, the skins, to the number of about 30,000, which were taken on St. George Island in that year.* Further confirmation of this additional killing has since been found in Dr. Dall's work on Alaska,† and it may therefore probably be safely added to the amount of the total slaughter in that year.

The remarks made in the foregoing pages appear to us to be an appropriate if not a necessary supplement to those contained in our original Report. They embrace a general consideration of the observations made and evidence collected since the completion of that Report, and express the opinions which we have been led to form in connecting the new facts with those already considered by us at length.

In conclusion, we would add that certain additional information obtained by us by means of correspondence or otherwise since the completion of our Report, which has collateral bearings on the subject of seal life in the North Pacific, and the consideration of any measures appropriate to its protection, are collected in the form of an Appendix to this Supplementary Report.

(Signed) GEORGE BADEN-POWELL.
GEORGE M. DAWSON.

January 31, 1893.

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* Report of British Commissioners, para. 808
† "Alaska and its Resources," p. 497.

APPENDIX I.

Further Replies from Colonial and Foreign Governments, &c.

1. NEW ZEALAND.
2. CAPE OF GOOD HOPE.
3. CHILE.
4. JAPAN.

1. NEW ZEALAND.

No. 1.

Colonial Office to Foreign Office.

Sir, *Downing Street, July 22, 1892.*

I AM directed by Lord Knutsford to transmit to you, for the information of the Marquis of Salisbury, and for communication to the Behring Sea Commissioners, a Memorandum and its inclosures on the subject of the seal fisheries of New Zealand, which has been received from the Governor of that Colony.

I am, &c.
(Signed) JOHN BRAMSTON.

Inclosure 1 in No. 1.

Memorandum on New Zealand Seal Fisheries, by the Premier of New Zealand, June 7, 1892.

New Zealand Seal Fisheries.

THERE are no records of the number of the fur-seals that formerly existed on the coasts of New Zealand and the adjacent islands (Antipodes, Bounty, Campbell, Auckland, Chatham, and Macquarie Islands). All that is known is that they were very numerous. Information on the subject of the numbers of seals that were killed in the first half of the present century will be found in the article on seals in the "Handbook of the Fishes of New Zealand."

The numbers of the fur-seals gradually decreased until there were but few left. Steps were taken in 1881 to close the seal fisheries, and they were so kept closed until last year, and, [illegible] of occasional poaching, the seals appear to have increased in numbers to a considerable extent. The fisheries were last year opened for two months (July and August), the Regulations providing that only male seals of over 36 inches in length were to be killed; but there is reason to believe that these Regulations were not adhered to, and that the seals were killed irrespective of size or sex. There is no definite information of the number that were killed during these two months, but 1,322 skins were exported during the September and December quarters. There will be no open season this year.

2. The decline of the seal fishery is attributed to the indiscriminate slaughter of the seals while on shore at their breeding places. As far as it is known, they have never been killed, that is to say, in any great number, when on the circumjacent ocean.

3. The seal fishing has been and is carried out by vessels fitted out with a considerable number of men, which landed parties at various places; these parties proceeded to the seal rookeries, killed and skinned the seals, the vessel calling for them at the close of the season. Parties also went out on the coasts of New Zealand in large open boats, called sealing-boats.

4. The following Memorandum on Antarctic seals, by Sir James Hector, K.C.M.G., gives particulars of all that is known of the life history of these animals:—

"At least nine species exist, but the nomenclature has been greatly confused and rendered untrustworthy by the injudicious record of species founded on imperfect specimens, on characters due only to age and sex, and to reliance having been placed on hearsay evidence. For commercial purposes, the following classification may be considered sufficient:

"I. *Eared Seals.—The Otarias.*—These, like land mammalia, have a direct communication through the integument from the organs of hearing, and have also an external ear lobe, which enables them to appreciate the direction from which they receive sounds.

"These are again divided into—

"(*a.*) *Hair-seals*, or *Sea-lions*, which are covered with long, coarse hair, and have no under fur, and are, therefore, only commercially valuable for the production of oil.

"(*b.*) *Fur-seals*, or *Sea-bears*, which have an under fur, as well as a clothing of long hair, both of which are cast and renewed each summer, so that the skin of the animal when taken at the proper season is of value as a 'peit' or furriers' material.

"II. *Eared Seals.—The Phocas.*—The common varieties of the North Atlantic, such as the Greenland seal, the harbour seal, crested seal, belong to this class, but they are not represented in the southern seas. This class is known by the following Antarctic representatives:—

"(*a.*) *Sea-leopards*, which are large, spotted seals, covered with coarse hair, but [illegible] gregarious in their habits, although abundant and widely distributed, have no commercial v.

"(*b.*) *Sea-elephants.*—These are massive, unwieldy, and gigantic animals, which [illegible] a very restricted distribution, being confined to the islands in the entire south. They are chiefly prized for the large quantity and fine quality of oil which they produce.

"III. *Walruses*, or *Sea-pigs*.—These are valuable for their oil and for their ivory, which, though inferior to elephant ivory, is used for the same purposes. The evidence of the actual existence of this southern walrus is at present founded only on hearsay report, but it is very probable that when the great Antarctic islands and icefloes, as yet unvisited, are explored, not only this but other novel forms will be found.

"The walrus, or morse, is now found only in the Polar Seas about and northward of Behring Strait, but their range has been restricted of late, as Captain Cook found them much further south along the coast-line of the North Pacific.

"To describe more in detail:—

"I.—*Eared Seals.*

"(*a.*) *Hair-seals.*—This group, the sea-lions, rendered so familiar by the rookery outside the Golden Gate of San Francisco, is represented in the north by *Zalophus lobertus*, which is found chiefly in the longitude of the Cape of Good Hope, and *Protoarctus hookeri*, which is supposed to be a different species frequenting the islands in the longitude of New Zealand and southward, and is best known at the present time as the Auckland Island sea-lion.

"Like all the eared seals, these species are polygamous, and have a very different life history. The males are enormously larger than the females. About December they take up stations on the coast in warmer latitudes, such as the west coast of New Zealand, and formerly in the islands in Bass Straits and west coast of Tasmania. Soon after the cow-seals appear, and on landing give birth to the young, each male securing a harem of ten to twenty cows, and protecting the mothers and young pups. The rutting season is in January, after which the males (or lions) leave the mothers to bring up the young until May, when they all leave the coast for the winter. The mode of life of the hair-seals has, however, been much altered since 1863, when I made my observations, and I think that the New Zealand hair-seals have become much more solitary, and will soon become extinct.

"(*b.*) *Fur-seals* or *Sea-bears.*—This is, in the southern seas, the seal of commerce, and it is much to be regretted that so little accurate information was collected in former years about its life-history. Three species are supposed to exist (after weeding out many synonyms), but I am inclined to think they all are the same:—

"*Arctocephalus Falklandicus* (of Cape Horn longitude).

"*Arctocephalus Antarctus* (of the Cape of Good Hope longitude).

"*Arctocephalus Forsteri* (of New Zealand longitude).

"I can only speak of the latter, or New Zealand fur-seal. Formerly they were very abundant along the west coast of the South Island and on the Tasmanian coast. I spent from June 1863 to January 1864 in the west coast sounds of Otago, and have since made many occasional visits at other seasons, but chiefly during the summer months, from February to May.

"I have always observed the seals closely, and have collected many specimens.

"The male fur-seal used to arrive about the 5th November, on inaccessible rocky platforms outside the entrance to the fjords or sounds, and the cows began to arrive about the 1st December. At the same date all the young stock, males up to 7 and females up to 3 or 4 years old, went to still more exposed places by themselves, and spent the moulting season until about the end of March, when, having acquired the new fur-coat, they take off to sea. The last of these 'hauling grounds,' as they are called, I have known in New Zealand, was at Cape Foulwind, but formerly they were all round the coast. In the breeding grounds, or 'rookeries,' the old males keep guard on the females and newly-born pups until the close of the rutting season—about the 15th February—and then desert them, being then in a feeble and emaciated condition from having fasted and fed only on their own fat for several months. The females remain with the pups until they learn to swim and to catch fish for themselves, and about the end of May they all leave the coast, only an occasionally groggy old bull remaining behind for the winter months.

"II.—*Earless Seals.*

"(*a.*) *Sea-leopards.*—Of these, four species are known:—

"*Stenorhynchus leptonyx.*—This is common round the New Zealand coast, but is a solitary animal. They frequently come on shore, and, notwithstanding their feeble powers of locomotion, they scramble far back into the bush in flat country, and occasionally ascend rivers for a long distance; for instance, one of the seals ascended the Waikato River, a few years ago, as far as Hamilton, and was claimed by the Maories as being a real 'taniwha.'

Another specimen, *Leptonychotes Weddellii*, was only known until lately from a single specimen obtained by Ross' Antarctic expedition, but last month I identified a splendid specimen as being this species in Mr. Drew's museum at Wanganui. It was stranded on the beach outside Wanganui Heads.

"The other two specimens of 'earless' seals are *Lobodon Carcinophaga* and *Omatophoca Rossii*, and were both collected in the Antarctic seas, but are only imperfectly known.

"(*b.*) *Sea-elephants* (*Macrorhinus elephantina*).—This huge seal was formerly abundant on many of the Antarctic islands, but is now almost confined to Kerguelen Land, Hood's Island, and the Macquarie Islands. It is remarkable from having the power, when enraged, of inflating its nose so as to form a proboscis. The male is much larger than the female, being sometimes 22 feet in length, while the female measures about 10 feet. They never go far from land, and in the month of November they go ashore in large herds for the purpose of shedding their winter coats, and when the calving takes place.

"The mating season is in February, by which time the males become very thin, as they eat no food during their sojourn on land.

"This seal was greatly prized for its oil, which is obtained from a thick layer of blubber underneath the skin. They formerly assembled in incredible numbers on the various southern islands, and their bones are found in old Maori camping-grounds on the New Zealand coast. They were first hunted about the commencement of the present century, but it is now many years since they have been ruthlessly extirpated on all but a few of the most desolate and inaccessible of their retreats.

"In conclusion, I may remark that the information which we possess concerning the life-history of the forms which exist in the Antarctic seas is most imperfect and unsatisfactory, especially with regard to the forms that are commercially valuable, such as seals, whales, and fishes."

Copies of the Acts and Regulations relating to the seal fisheries, and of the "Handbook on the Fishes of New Zealand," are forwarded herewith.

(Signed) J. BALLANCE.

Premier's Office, Wellington, June 7, 1892.

Inclosure 2 in No. 1.

NEW ZEALAND.

QUADRAGESIMO SECUNDO VICTORIÆ REGINÆ.—No. 43.

ANALYSIS.

Title.
1. Short Title.
2. Repeal.
3. Close season for seals.
4. Close season may be varied.
5. Fishery may be closed.
6. Penalties to apply to extended seasons.
7. Districts may be excluded from Act.

Title.

*An Act for the Protection and Preservation of Seals.**

[*2nd November*, 1878.]

BE it enacted by the General Assembly of New Zealand in Parliament assembled, and by the authority of the same, as follows:—

Short Title. 1. The short title of this Act shall be "The Seals Fisheries Protection Act, 1878."

Repeal. 2. Section 2 of "The Protection of Animals Act Amendment Act, 1875," is hereby repealed.

Close season for seals. 3. No person shall hunt, catch, or attempt to catch, or kill seals between the days hereinafter mentioned (which interval is herein referred to as "the close season"), that is to say, between the 1st day of October and the 1st day of June following, both inclusive; and any person acting in contravention of this section shall forfeit any seal caught by him, and shall in addition thereto incur a penalty not exceeding 50*l.*, and a further penalty not exceeding 10*l.*, in respect of each seal so caught.

Close season may be varied. 4. The Governor may, by Order in Council, from time to time, extend or vary the time during which it is prohibited to hunt, catch, or kill seals, and may from time to time vary the close season so extended, and may also prescribe that any such Order shall take effect in the whole Colony, or only in particular parts thereof, to be defined in such Order.

Fishery may be closed. 5. If he shall think it necessary for the preservation of seals to do so, the Governor may, in a similar manner, extend the time during which it is prohibited to hunt, catch, or kill seals over any term not exceeding three years, and may at any time before the expiration of any such term further extend the same.

Penalties to apply to extended seasons. 6. Any penalties imposed by this Act for the purpose of prohibiting the catching or killing of seals during the close season shall apply to such season, however the same may be varied or extended.

Districts may be excluded from Act. 7. The Governor may, by Order in Council, from time to time exclude any part of the Colony from the operation of this Act.

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* NOTE.—This Act was incorporated with "The Fisheries Conservation Act, 1884."

Inclosure 3 in No. 1.

New Zealand.

Analysis.

Title.
1. Short Title.
2. To be read with the Act of 1884.
3. Penalty for breach of Regulations.
4. Possession of seals, &c., during close season to be proof of having been taken illegally.
5. Vessels and boats engaged in illegally taking seals to be forfeited.
6. Commander of vessel belonging to Her Majesty or Colonial Government and Customs officers may seize vessel or boat liable to be forfeited.
7. Power to search vessel. Penalty for obstructing search.

An Act to amend "The Fisheries Conservation Act, 1884." Title.

[*23rd December*, 1887.

BE it enacted by the General Assembly of New Zealand in Parliament assembled, and by the authority of the same, as follows:—

1. The short title of this Act is "The Fisheries Conservation Act 1884 Amendment Act, 1887." Short Title.

2. "The Fisheries Conservation Act, 1884," is herein referred to as "the said Act," and this Act shall be read with the said Act. To be read with the Act of 1884.

3. The penalty that may be imposed under the provisions of section 5 of the said Act shall, in respect of the breach of any Regulations respecting seals, be any sum not exceeding 500*l.*, and a further penalty of not exceeding 20*l.* for every seal illegally taken. Penalty for breach of Regulations.

4. If any person shall be found in the possession of any seal, or the unmanufactured product of any seal, during the close season, such possession shall, for the purposes of the said Act and this Act, be deemed to be, in the absence of satisfactory evidence to the contrary, sufficient proof that such seal, or the seal from which such unmanufactured product has been obtained, has been illegally taken during the close season. Possession of seals, &c., during close season to be proof of having been taken illegally.

5. Any vessel or boat the crew of which, or any part of the crew of which, shall be engaged in illegally taking seals, and any vessel or boat on board of which any seal so illegally taken, or the skin, oil, blubber, or other product of a seal so illegally taken, shall be found, shall, together with the boats, furniture, and appurtenances of such vessel or boat, be forfeited to Her Majesty, and shall be disposed of as the Commissioner may think fit. Vessels and boats engaged in illegally taking seals to be forfeited.

6. The officer in command of any vessel in Her Majesty's navy, or any officer of Customs, or the master or other person in command of any vessel belonging to Her Majesty in the Colony, or which may be in the employ of the Government of the Colony, may, either with or without sailors, marines, or police officers, or such other person or persons as he may think fit to employ, enter upon, take, and seize any vessel so liable to be forfeited as aforesaid, if found within the jurisdiction of the Government of the Colony of New Zealand. Commander of vessel belonging to Her Majesty or Colonial Government and Customs officers may seize vessel or boat liable to be forfeited.

7. Every such officer, master, or person in command as aforesaid, or any officer of Customs, shall, with or without sailors, marines, or police officers, or such other person or persons as he may think fit to employ, have power, at any time and from time to time, to enter upon and search any vessel within the jurisdiction of the Government of the Colony of New Zealand for any seal, or the product of any seal; and any person refusing to allow such search to be made, or obstructing or impeding any such search, shall be liable, on summary conviction of such offence: for the first offence to be imprisoned and kept to hard labour for any term not less than three nor more than six months, and for the second or any subsequent offence to any term not less than six nor more than twelve months. Power to search vessels. Penalty for obstructing search.

Inclosure 4 in No. 1.

Extract from the New Zealand Order in Council, January 1888, *enacting Regulations under the Fisheries Conservation Acts.*

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3. Nothing in these Regulations shall be deemed to prevent any Maori from taking oysters or indigenous fish (exclusive of seals and other amphibious mammalia) for consumption by himself and family, and not for sale; nor shall they extend or apply to the taking of indigenous fish with rod and line, or line only.

* * * * * * *

10. No person shall buy, sell, expose for sale, or have in possession any fish, oyster, or seal, or any skins, oil, or blubber of any seal during the close season for the same; and no person shall buy, sell, expose for sale, or have in possession any fish, oyster, or seal, nor any skin, oil, or blubber of

any seal of a less size or weight than prescribed by these Regulations, or by any Regulations altering or amending the same, or in any manner in contravention of the said Act. But nothing herein shall prevent the operation of section 5 of these Regulations in respect of rock-, mud-, or shore-oysters.

11. The months of October, November, December, January, February, March, April, and May in each year are hereby prescribed a close season for seals.

* * * * * * *

22. Any person committing a breach of any of these Regulations in respect of any Regulations not relating to seals shall be liable to a penalty of not less than 1*l.* and not exceeding 50*l.*, and any person committing a breach of such of these Regulations as relate to seals shall be liable to a penalty of not less than 5*l.* and not exceeding 500*l.*, and a further penalty of not exceeding 20*l.* for every seal illegally taken.

23. Every penalty imposed by these Regulations shall be recovered in a summary manner before any two or more Justices of the Peace.

Extending the Close Season for Seals.

(Signed) WM. F. DRUMMOND JERVOIS, *Governor.*

Order in Council.

At the Government House at Wellington, this 13th day of January, 1888.

Present:

HIS EXCELLENCY THE GOVERNOR IN COUNCIL.

Whereas by "The Fisheries Conservation Act, 1884" (hereinafter termed "the said Act"), it is, among other things, enacted that the Governor in Council may from time to time make, alter, and revoke Regulations for the purposes therein mentioned, which said Regulations shall have force and effect only in any waters or places specified therein:

And whereas by Order in Council, dated the 10th day of January, 1888, certain Regulations were made, in exercise and pursuance of the powers conferred by the said Act, among other things prescribing a close season for seals:

And whereas it is expedient to extend such close season for seals:

Now, therefore, his Excellency the Governor of the Colony of New Zealand, in exercise and pursuance of the powers conferred upon him by the said Act, and by and with the advice and consent of the Executive Council of the said Colony, doth hereby make the following Regulation:—

The close season for seals prescribed by Order in Council, dated the 10th day of January, 1888, is hereby extended until the 1st day of June, 1889; and this Regulation shall have force and effect in the Colony of New Zealand, and in all salt, fresh, and brackish waters of the said Colony, and on all shores of such waters and any part thereof, or that may be contiguous or adjacent to such waters.

The Regulations made by Order in Council on the 10th instant and this Regulation shall extend to and include seals of any species whatever.

(Signed) FORSTER GORING,
Clerk of the Executive Council.

Inclosure 5 in No. 1.

Prescribing a Close Season for Seals.

(Signed) JAMES PRENDERGAST,
Administrator of the Government.

Order in Council.

At the Government House at Wellington, this 30th day of May, 1892.

Present:

HIS EXCELLENCY THE ADMINISTRATOR OF THE GOVERNMENT IN COUNCIL.

WHEREAS by "The Fisheries Conservation Act, 1884" (hereinafter termed "the said Act"), it is, among other things, enacted that the Governor in Council may from time to time make, alter, and revoke Regulations (which shall have force and effect only in any waters or places specified therein) for prescribing, among other things, a close season or close seasons for seals:

And whereas it is provided by the 3rd section of "The Fisheries Conservation Act 1884 Amendment Act, 1887," that a penalty not exceeding 500*l.* may be imposed in respect of the breach of any Regulations respecting seals, and a further penalty of not exceeding 20*l.* for every seal illegally taken:

And whereas it is expedient to make the Regulations hereinafter set forth with respect to seals inhabiting or found within the waters of the Colony hereinafter mentioned:

Now, therefore, his Excellency the Administrator of the Government of the Colony of New Zealand, in pursuance and exercise of the powers conferred by the said Act and "The Fisheries Conservation Act 1884 Amendment Act, 1887," and acting by and with the advice and consent of the Executive Council of the said Colony, doth hereby make the Regulations set forth in the Schedule hereto; and with the like advice and consent doth order that such Regulations shall have force and effect throughout the Colony of New Zealand, and in all salt, fresh, and brackish waters of the Colony, and on all shores of such waters, or any part thereof.

SCHEDULE.

Regulations.

1. The months of June, July, August, September, October, November, and December 1892 are hereby prescribed as a close season for seals.

2. No person shall buy, sell, expose for sale, or have in possession any seal, or the skins, oil, or blubber of any seal, taken during the close season hereby prescribed for the same.

3. Any person committing a breach of any of these Regulations shall be liable to a penalty of not less than 5*l.* and not exceeding 500*l.*, and a further penalty of not exceeding 20*l.* for every seal illegally taken.

4. Every penalty imposed by these Regulations shall be recovered in a summary manner before any two or more Justices of the Peace.

(Signed) ALEX. WILLIS,
Clerk of the Executive Council.

Inclosure 6 in No. 1.

Extracts from the "Handbook of the Fishes of New Zealand" (prepared under the Instructions of the Commissioner of Trade and Customs by Mr. R. A. A. Sherrin, Auckland, 1886).

MR. S. THOMPSON, in his story of New Zealand, remarks of the sealers: "These men commenced their intercourse with the natives in the southern parts of the Middle Island about the beginning of the century, being landed from whale-ships for the purpose of killing seals, then very numerous all round the coast. Disputes at first arose between the sealers and the natives relative to property and women, and in such conflicts the sealers adopted the New Zealand custom of slaying the first native they encountered; but both races soon became sensible of the benefits of peace, and the savages, to promote this great object, gave the strangers wives and Cod-fish Island as a residence. Here they built houses and cultivated the soil, and when their numbers increased they spread themselves round the coasts. Between 1816 and 1826, 100 sealers were permanently settled in New Zealand, and in 1814 a vessel of 150 tons burden was built by them at Dusky Bay."

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The records of the days when the sealers congregated in the Southern Island are scanty and scattered in our miscellaneous New Zealand literature; and as the seals had almost disappeared from our coasts before 1840, it is in vain to look for information from official sources. New South Wales could possibly aid in filling up the gap in the first forty years of this century; but the Custom-houses of Boston and New Bedford would have to be ransacked to enable us to gather aught like complete knowledge of how prevalent seals were in New Zealand when its seal fisheries obtained a wide notoriety. This information would have been accessible had the late Mr. Sterndale been enabled to carry out the plan he contemplated of gathering such details, with many others, together, and bringing out a new edition of Findlay's "South Pacific Directory." The details would be valuable, beyond gratifying what some would call an idle curiosity, in causing legislation to grasp the importance of an industry, the past proportions of which are now largely underrated.

The Maori name for seal is "kekeno."

* * * * * *

In 1821 and 1822 the take of seals by British sealers at the South Shetlands was 320,000 for the two years. Males and females were killed indiscriminately, and the young left to die. Then came the Americans to finish the work we had so well begun. Armed with every engine of slaughter that ingenuity could devise, they cruized, like the buccaneers of old, up and down in the south seas, visiting and setting down upon their charts every island, reef, or rock. Every living thing that had fur, hair, or blubber on its body they killed. Seals had become scarce so early as 1835, when regular sealing in large parties at given localities had ceased to be profitable; and men were then left "to watch out" and shoot the animals as they came on shore.

In 1821, a vessel called the "General Gates" left Boston, United States. On the 10th August following five men and a leader named Price were landed near the South-west Cape of Te-Wai-Poenamu (the Middle Island). In six weeks they got 3,563 skins. Nicholson, who accompanied Marsden to New Zealand in 1814, was keen to observe the importance of the seal trade to New South Wales, and writes: "The ursine seal, or the sea-bear, and the sea-lion are found in congregated

herds to the southward, and on Campbell and Macquarie Islands, which are situated at no great distance from the southern part of New Zealand. The valuable furs of these animals are found in great plenty, and are now made by the colonists of New South Wales a most profitable article of commerce." Writing in 1836 or 1837, Polack says: "Some fifteen years since, seals were abundant on the southern parts of the country, ... but so few are now procurable that a single vessel employed solely in this trade would make a losing speculation." Salted seal-skins were found in the hold of the "Boyd;" and Mr. John Jones, of Waikouaiti, began work and thrift, it is stated by Shortland, in these waters as a boy sealing. These details are collated to show how wide the profits on sealing were before we took possession of New Zealand, and how expanded our sealing may, under wise legislation, again become.

Seals had a wider range in earlier days along our coasts than their descendants enjoy. Their bones are found in the middens at Whangarei. Polack tells us how the natives on the east coast captured one at Poverty Bay when he was there in 1836, affording them, as it did, a rich treat. Kennedy says they were found in Cook Strait at an early period in immense numbers; while Dieffenbach, in 1839, states that only a straggling animal was occasionally seen in Cook Strait. Cook, it will be remembered, says the largest seal he had ever seen was on the excursion to the east, and notices in Charlotte Sounds a sea-lion rise twice near the shore. Polack says the favourite grounds of the seals were the whole of the west coast of the Middle Island, from Cape Farewell to the South Cape, including the rocks called the Traps, the Snares Islands, the Antipodes Islands, and the Chatham Group. Heaphy, at a much later date, writes: "The seal parties were located at Port Pegasus, Dusky, Jackson, Daggs, Milford, and Teramakau, in the greenstone country; and they visited in their boats the Black Reef, or Three Steeples, off the mouth of the Buller; Toropuhi, near Rocky Point; and the Brothers Rocks, in Cook Strait. In 1846," he adds, "I walked along 300 miles of the west coast of the Middle Island, passing the Black Reef and Toropuhi. There were pieces of English oak and fragments of copper on the beaches, indicating where one of the sealing ships had been wrecked, and the starving crew eaten by the bush natives. At Toropuhi there were three seals on an offshore rock, stretching out their necks and ungainly heads to look at us. They were the last remnants of their race."

* * * * * *

A fair description of the mode in which sealing is carried on in New Zealand is given by the late Major Heaphy in the following words: "Suddenly the headsman makes a sign for 'oars,' and they are laid in noiselessly, the bow oarsman previously ascertaining the depth of the water, which he quickly intimates to the headsman; the grapnel is dropped over the bow at such a distance that the boat shall not touch, and, taking our clubs and lances, we wade waist deep in the water to the rocks. It is not yet sufficiently light to discern whether there be any seals, but we think we can hear their grunting. It is very cold; blowing from the south right into us, with no shelter but a shelf of rock, and even smoking prohibited. In half-an-hour or so it becomes light enough to discern objects, and we suddenly hear shouts from the opposite side of the reefs. It is the captain's party starting the seals. We get to the top of the reef as quickly as possible, and right in the front of us, almost as thick as a drove of sheep, but each taking its own way, come the seals. Striking, spearing, right and left; some of the seals making, like pigs, between one's legs, with here and there a tumble and a roll. The captain and his party are following them closely, and by the time the last has reached the water, seventy-six seals are lying dead or stunned on the reef."

* * * * * *

Captain W. J. Grey, writing to the Secretary of the Marine Department on the 29th March, 1881, says of his voyage in the "Stella": "It is only a few years since all the west coast of New Zealand was full of seals (rather, perchance, an exaggerated statement), but there is not one to be seen now; neither did we see any at the Auckland Islands during the whole time we were there. Unless sealing is put a stop to for at least two years the seals will be driven out altogether. Most of the sealers say themselves that it will be a good thing, and it would give the seals a chance to come round again." The following year it may be noticed that Mr. Seed assessed our seal trade export annual value at 8,000*l.*

From the year 1853 onwards the export of seal-skins from New Zealand has been of a very irregular character, as the following details from the "Statistics" will show: In 1855, from Wellington, 580 skins were exported; and in 1857, 376; when no further record of exportation is found until 1868, when the years and numbers run as follows: 1868, 675; 1869, 14; 1870, 269; 1871, 755; 1872, 2,012; 1873, 1,602; 1874, 1,061; 1875, 2,767; 1876, 3,417; 1877, 1,503; 1878, 820; 1879, 2,484; 1880, 2,648; 1881, 1,259; 1882, 353; 1883, *nil*; 1884, 374. It is worthy of notice that the party landed from the "General Gates," in 1821, got more skins in six weeks from the south end of the west coast of the Middle Island alone than have been exported from all our sealing grounds during any one year since 1868.

2. CAPE OF GOOD HOPE.

No. 2.

Captain Jackson to Dr. Dawson.

Dear Sir, *Cape Town, December* 21, 1892.

I HAVE before me your letter of the 9th ultimo, received by the last European mail, and I note all you say.

I am sorry that, having no statistics to go upon, my Report was somewhat meagre, having to fall back entirely upon my own personal experience, extending over about twenty years, and that of practical experts associated with me.

I can indorse every word of the inclosed statement by Captain Roe, a person who, without exception, has had greater experience in these matters than any one at present living in the Colony.

If there is any other matter upon which I can give you any information, I shall be glad to do so.

Yours faithfully,

(Signed) C. H. JACKSON.

Inclosure in No. 2.

Statement of Captain Roe, Cape Town.

I HAVE been engaged for nearly half a century in the capture of seals on the coasts of the Cape of Good Hope, and I have had endless opportunities of observing the habits of these animals in these latitudes; and I am convinced that where a cow (seal) has lost her young she will suckle any other; and I am of opinion that even in some cases under any circumstances she will suckle young ones other than her own.

(Signed) JOHN ROE.

Witnesses to signature:
(Signed) H. KNIPHOUSE.
C. H. JACKSON.

3. CHILE.

No. 3.

Mr. Maude to the Earl of Rosebery.

My Lord, *Santiago, August* 25, 1892.

WITH reference to my despatch of the 18th June, I have the honour to forward herewith translation of an Ordinance regulating the seal fisheries, which has been published in the official Gazette.

A supplementary Decree which has just appeared, of which I also inclose a copy, suspends for the period of one year all seal fishery on the coasts therein mentioned.

I have, &c.

(Signed) C. T. MAUDE.

Inclosure 1 in No. 3.

Extract from the "Diario Oficial" of August 19, 1892.

(Translation.)

No. 1623.—*Santiago, August* 17, 1892.

IN concert with the Council of State, I have approved the following:—

Ordinance regulating the Pursuit at Sea or on Land of Seals or Sea-wolves, Otters, and "Chungungos" in the Coasts, Islands, and Territorial Waters of Chile.

Article 1. Only Chileans and foreigners domiciled in Chile are allowed to engage in the pursuit on land or at sea of seals or sea-wolves, otters, and "chungungos" in the coasts, islands, and territorial waters of the Republic, as laid down in Article 611 of the Civil Code.

No ships can engage in the pursuit to which this Ordinance refers except those Chilean vessels which are in possession of the qualifications required by the Navigation Laws to be considered as such, foreign vessels being absolutely prohibited from engaging in this industry.

Art. 2. For the purposes of this Ordinance, the coasts, islands, and territorial waters of Chile shall be considered as divided into as many zones as there are Maritime Governments in the Republic.

The extent of each zone shall be that of the respective Maritime Government.

Art. 3. The pursuit on land or at sea of seals or sea-wolves, otters, and "chungungos" is entirely prohibited during the months of November, December, January, and February of each year.

Art. 4. National ships or vessels engaged in this pursuit must obtain a special licence from the Commandant-General of Marine's office, which will be granted after hearing the report of the local authorities, and the agreement to a bond to answer to the charges which may be brought against the person obtaining the concession. The amount of this bond shall be 200 dollars for vessels of less than 25 tons, and 1,000 dollars for those of greater burden.

The breach of this Article shall be punished by a fine of from 10 to 50 dollars per animal taken without the requisite licence, which fine does not prejudice the right to confiscate the product of the fishery.

Art. 5. The licence to which the preceding Article refers shall not be available for more than one season, and shall state (1) the zone in which the ship is to engage in the industry, it only extending over one zone; and (2) the number of seals or sea-wolves, otters, or "chungungos" which the person obtaining the concession is licensed to take.

Persons violating the dispositions of this Article shall be punished by the fine referred to in the foregoing Article, and by the confiscation of the skins taken outside the zone specified in the licence, or in excess of the number fixed in it.

Art. 6. The licence referred to in Article 4 does not exempt the vessel which obtains it from the obligations imposed by Article 4 of the Navigation Laws.

Art. 7. The killing of the females of the species referred to in this Ordinance is absolutely prohibited, as also that of males below the age of 1 year.

Persons violating this provision shall be liable to a fine of from 50 to 100 pesos for each offence, and the confiscation of the skins.

Art. 8. It is also forbidden, under the penalties specified in the preceding Article, to employ in their pursuit fire-arms and other means calculated to frighten away the animals from their accustomed places of resort.

Art. 9. On the termination of the fishing expedition all vessels must return to their port of departure, so that the official whose duty it is may order the cancelment of the bond agreed upon, always provided that the dispositions of this Ordinance have not been violated.

Art. 10. The President of the Republic can entirely put a stop to the pursuit in one or more specified zones when the propagation of the species and the future of the industry may require it.

Art 11. This Ordinance shall enter into operation from the date of its promulgation, and all ships engaged in the fishery shall carry a copy of it under pain of a penalty of 10 dollars.

(Signed) MONTT.

Inclosure 2 in No. 3.

Extract from the "Diario Oficial" of August 23, 1892.

(Translation.)

No. 1642.—*Santiago, August 20,* 1892.

TAKING in consideration that the industry of the fishery of seals or sea-dogs, otters, and "chungungos" can constitute a considerable source of wealth on the coasts of the Archipelago of Chiloe, Territory of Magallanes, and Islands of Juan Fernandez, if its exercise be suspended by a temporary prohibition so as to provide for the propagation of these species, which are almost extinct owing to the immoderate manner in which they have been pursued;

Making use of the power with which I am endowed by Article 10 of the Ordinance of the 17th instant, I have agreed and decreed that the fishery of seals or sea-dogs, otters, and "chungungos" be suspended for the period of one year in the regions included in the Maritime Governments of Chiloe and Magallanes, and on the coasts of the Islands of Juan Fernandez.

(Signed) MONTT.

No. 4.

Extract from Inclosure in Despatch from Mr. Maude to the Marquis of Salisbury, June 18, 1892.

Extracts (Translations) from the "Boletin de la Sociedad de Fomento Fabril" ("Journal of the Association for the Promotion of Industries") of Chile.

[Numbers for June, July, and August 1885.]

"*Fishing and Hunting in Chile.*" By Julio Puga. Prize Essay at the National Exhibition, 1884.

Chapter 3.—*On the principal Needs in our Territorial Waters in regard to Animals* (pp. 319, 320).

". . . . Among the mammals (*Pinnipeds*) we have in great abundance on our southern coasts the very valuable sea-wolves (fur-seals) (*Otaria*), which produce both furs and oil, and of which it is reported that in certain parts of our territorial seas no less than six different species have been recognized, among them the sea-elephant (*Macrortinus probascideus*), which attains to a length of 18 feet and a girth of 10 feet.

"One species of seal, smaller, and in great abundance in the Province of Magellanes, supplies the fine fur-skin so well known: this is the *Otaria ursina*. The skins of this seal which were sent to the Fisheries Exhibition in London attracted much attention, and were awarded a silver medal.

"Those kinds which produce excellent oil and whose skins are so valuable are very easily taken, as they frequently come ashore to bask in the sun, seeing that under these circumstances the sealers can easily capture them before they escape to the water. As is well known in Chile, this species provides for foreigners, and also for a few Chileans, a reliable fishery, yielding a considerable annual output."

Chapter 5.—*On the necessity of regulating the Fishery Industry with a view to its Preservation* (pp. 322, 323).

"In Chile the industry with which we are dealing is not regulated in any way. There do not exist any regulations for any special branch of this industry, excepting only in the case of oysters. . . . . Such regulations ought not to be limited to guaranteeing to each individual their full rights; they ought, in addition, to protect these sources of wealth against the avarice of those who imagine they can best make most gain by a sudden appropriation, ignoring all ideas of permanent maintenance of the industry, and thereby consummating the destruction of the industry, whether for themselves or for the general public. . . . . In the Civil Code (in section 1 of Article 611) it is enacted: 'Sea fisheries are free to all, but fisheries in territorial waters are reserved exclusively for Chileans and domiciled foreigners.'

"Thus, in set terms and clearly, it is declared that foreigners not domiciled in Chile are only forbidden fisheries inside territorial waters. Without doubt it is notorious that for many years past in the territorial waters of the Province of Magellanes, and of the adjacent islands, the industry of taking fur-seals on a wholesale and barbarous plan has been instituted by foreigners not domiciled in Chile, and, what is worse, in vessels flying their own national flags and not the flag of Chile."

Chapter 6.—*Provisions of the "Codigo Civil" as to Fisheries* (pp. 324, 325).

"Let us see whether the products of the fisheries are capable of legal appropriation.

"The Code recognizes, in respect of the sea, a legal distinction, by which is clearly shown which of these products belong to the use and enjoyment of the citizens of some one nation, by common custom and consent, and which to the use and free enjoyment of the whole human race.

"Property in what is taken by Chilean citizens on the high seas is guaranteed by the law of nations, as is set out in Article 585 of the Civil Code:—

"'Things which in their nature are common property, as the product of the high seas, are not subject to any dominion, and no nation, corporation, or individual has any right to monopolize them. The use or enjoyment of them is determined among the citizens of any one nation by the laws of that nation, but between different nations by international law.'

"The Code states, in Article 593:—

"'The adjacent sea, to a distance of 1 marine league, measured from low-water mark, is the territorial sea, and under the national dominion; but police administration for the purposes of the security of the State or the carrying out of fiscal regulations, extends to a distance of 4 marine leagues, measured in the same manner.'

"The Code, in Article 606, dealing with appropriation, defined to be:—

"'The means by which dominion is acquired in things which belong to nobody, and the acquisition of which is not prohibited by the laws of Chile or by international law'—declares 'that hunting and fishing are methods of acquisition by which one obtains dominion over wild animals.'

"The Code, in Article 608, declares:—

"'Animals are termed wild or savage which live in their nature free and independent of man

"In the same Article the Code defines, incidentally, the kinds of animals in which fishing establishes a legitimate proprietary. All those kinds which live in water are by their very nature wild, so that whoever catches them becomes their owner, always provided that he is not acting contrary to the national or the international laws.

"Article 611 enjoins that:—

"'Sea fishing is free, but in the territorial seas the right of fishing is enjoyed only by Chilean citizens or domiciled foreigners.'"

Chapter 8.—*Of Fisheries in the High Seas* (pp. 369, 370).

"Thus we see that the use and enjoyment of the high seas is free; no one can assert dominion over them, and no one has any right to appropriate them, and the nation which claims to exclude any other nation from such user does an injury to that nation, and, consequently, to all other nations. . . . . The declared opinion of these eminent authorities leads us once more to affirm the principle that on the high seas fishing is free for all animals not being actually pursued, and that no nation can monopolize the fisheries of the deep sea or the fishery of any special species of animal."

Chapter 9.—*Regulations in respect of Fur-seals* (pp. 378-80).

"The development of the fisheries of this valuable animal in the south of Chile has assumed proportions which call for Government interference in view of the damage resulting.

"Complaints of such damage in March of last year (1882) caused the Minister for Foreign Affairs to commission Messrs. Viel, Rodh, and Houland to draw up a scheme of regulations for the seal fishery in the Province of Magellanes. The scheme was submitted to the Minister, accompanied by an instructive Memorandum, ... which pointed out that in the Straits of Magellan and the neighbouring islands and channels between the Penas Gulf and the southern limit of the South American Continent the fur-seal fishery has for some years past been in process of development. If this industry is to be continued as it has been commenced, under no control whatever, and without any regard of the stipulations of the Civil Code, or to the national interests, it can only end by destroying a much-needed source of national wealth, and by making it impossible for the patriotic residents in those remote territories to engage in this industry. At Punta Arenas certain expeditions are regularly organized for this purpose, but the vessels come from foreign countries to these shores to prosecute this fishery. These things occur in places well within territorial waters, where foreign vessels, as is shown in the Memorandum referred to, to the number of eight have violated the 611th Article of the Civil Code, which confines this industry to Chilean citizens and domiciled foreigners.

"In addition, the season during which this fishery is carried on is precisely the one at which there is the greatest risk of directly bringing about the extinction of the species.

"It is easy to understand why the sealers choose this season, seeing that the seals select this season to come ashore on the beaches and rocks to bring forth their young, which takes place during the months of November, December, January, and February.

"The sealers during these months carry on a barbarous slaughter, using both gun and club, with which they kill male and female seals and also pup-seals, although the skins of the latter have no value, as the double fur, which constitutes the peculiarity of seal-skins, does not appear until the second year. Thus by barbarous means the seals rapidly disappear either by being killed or scared, for those which do not fall to gun or club migrate to other places owing to the disturbance by which they have been terrified. As a sign of the destruction of seals which thus takes place we read, 'The United States' schooner "Florence" left the Straits with 13,000 seal-skins in her hold.'

"Between 1877 and 1880 there were exported from Punta Arenas 25,105 seal-skins. But 70,000, or even more, were taken away by the foreign vessels engaged in this traffic in these years, a by no means extravagant estimate when we remember that the 'Florence' in one year took 13,000. Perhaps 70,000 more perish in the slaughter, seeing that at least one-half of the skins taken are those of pregnant females, so that with each die many pups. In short, it may be confidently asserted that this fishery in each year yields not less than 70,000 or 80,000 seal-skins.

"At another time the seals come ashore on the flats and reefs when they are shedding their coats, but the sealers take good care not to kill them then, as the fur is of no value.

"Thus it is seen that the subject is one of grave and pressing importance.

"We note that in other countries measures have been adopted for the prevention of the evils incident to the unrestricted prosecution of this industry.

"In the United States of North America, for instance, Law No. 1960 forbids the killing of mature seals on the Islands of St. Paul and St. George during the four months of parturition. It also forbids the killing of seals at any time of the year by the use of fire-arms. The natives of the islands, however, enjoy the privilege of killing seals for purposes of food or clothing. Law No. 1956 punishes any who kill seals without a proper licence by a fine of 200 to 1,000 dollars or six months imprisonment; and any vessel caught violating that Law is forfeited together with its cargo. . . . .

"To sum up, we hold that the fur-seal fishery in Chile is at present carried on by citizens of various nationalities and by vessels flying foreign flags; that the seals are killed at every season of the year, and by means of fire-arms, which scare the seals; that seals less than a year old are killed, and

more important than all, that there is no restriction as to the numbers killed—all which affords more than sufficient reason to institute some definite remedy for these evils.

* * * * * * *

[Here follows draft of Ordinance given below.]

"Putting in force such regulations will yield to the Treasury a reliable income of 30,000 dollars a-year. . . . In addition a benefit is conferred on our fellow-citizens in these parts by opening to them the fur-seal fishery, at present monopolized by foreign nations. Should it be decided to be best to lease out these fisheries, the holder of the lease must continue bound by these regulations. . . . It is not necessary to repeat more, but it is a matter of urgent importance that prompt attention should be given to this subject, and that the opportunity be not missed of securing to the State a safe source of income, for as time goes on it will become more and more difficult to put a stop to the serious evil which we have described, and the remedy for which we have indicated in this chapter."

Number for August 1885 (pp. 131.)

"*Draft General Ordinance for regulating the Fisheries of the Republic of Chile.*

"Article 1. Fishing in Chile is free and authorized, provided nothing is done contrary to law or to the regulations enjoined in this Ordinance.

"Art. 2. It is unlawful to fish within the national waters except for those duly provided with a fisherman's certificate.

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"Art. 6. Fishing on the high seas is subject only to international law.

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"Art. 30. The fur-seal fishery in general, and especially in the Straits of Magellanes and the islands and channels adjacent, in all the parts included between the Penas Gulf and the southern end of the continent, can only be carried on by citizens of Chile or by foreigners domiciled in Chile, and by vessels flying the Chilean flag.

"Art. 31. It is absolutely forbidden to kill fur-seal during the months of November, December, January, or February, this being the breeding period.

"Art. 32. Equally is it forbidden to kill fur-seal by the use of fire-arms at any time of the year.

"Art. 33. Not more than 20,000 seals are to be taken in any one year except by special Decree of the President increasing or decreasing the authorized number in accordance with any increase or decrease in the numbers of fur-seal in the said districts.

"Art. 34. It is unlawful to pursue the fur-sealing industry without the written permission of the proper authority, that is, the Governor of the Province of Magellanes.

"Art. 35. Permits shall only be issued subject to the following conditions:—

"(1.) To persons or associations falling under the requirements of Article 30.

"(2.) On the express condition of observing all the enactments under this Ordinance, and, in addition, that not more than 100 seal shall be taken by any one individual of the expedition

"But if the number of applicants exceeds 200, the Governor shall distribute permits *pro ratâ*, so that the terms of Article 33 may be kept in view.

* * * * * * *

"Art. 36. For each seal-skin there shall be paid into the Treasury the sum of 1·50 pesos.

"Art. 37. The applicant for the licence or the captain shall be responsible for all contraventions of the Ordinance committed by any members of his expedition.

"Art. 38. If any individual or Company kill more than the number of seals permitted by these regulations, all the skins taken that year shall be confiscated, or, if they have been sold, the sums paid shall be confiscated.

* * * * * * *

"Art. 40. In addition to the penalties enacted in the previous Articles, every infraction of this Ordinance shall be punished by a fine of 100 pesos, or imprisonment for sixty days. Moreover, the vessel which illegitimately engages in this industry is forfeited, as well as the cargo.

"Art. 41. The native Indians of the territories specified in Article 30 of this Ordinance are permitted to kill fur-seal to provide food and clothing.

"Art. 42. Every vessel intending to take part in this sealing industry must carry an authorized copy of the 4th chapter of this Ordinance down to and including this Article."

No. 5.

M. Matté to the Earl of Rosebery.

(Translation.)

My Lord, *London, August* 31, 1892.

I HAVE the honour to inform your Lordship that a telegram has been received at this Legation stating that my Government have absolutely prohibited fishing for sea-lions, seals, and sea-otters in the Archipelago of Chiloe, the Island of Juan Fernandez, and the territory on the Straits of Magellan.

I venture to request your Lordship to transmit this information to the Departments of Her Britannic Majesty's Government to whom this prohibition may be of interest.

I have, &c.

(Signed) AUGUSTE MATTÉ.

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4. JAPAN.

No. 1.

Mr. de Bunsen to the Earl of Rosebery.

My Lord, *Tôkiô, December* 2, 1892.

WITH reference to your Lordship's telegram of the 28th November, directing me to report if any specimens of fur-seal taken in Japanese waters are in Japanese museums, I have the honour to forward copies of the inclosed documents.

From the Memorandum furnished by Mr. Snow, who has been for years engaged in the seal fishery, it appears that there is but one species of fur-seal in the North Pacific, *Callorhinus ursinus*. The animals caught in Japanese waters are from the rookeries in the Commander Islands and Robben Island, and from December to the middle of June they are to be met with in large numbers on the south-east coast of Yezo and the east coast of this island from Inuboye northwards from 20 to 150 miles off shore, and in the Japan Sea as far south as Tsushima.

Through the kindness of Professor Mitsukuri, of the Imperial University of Japan, I am enabled to forward a list of Japanese pinnipedia derived "from sources considered most trustworthy." In this list appears *Otaria* (*Callorhinus*) *ursina*, *Lesson*.

On repairing to the Ueno Museum at Tôkiô I found, among other stuffed specimens of pinnipedia, one marked "*Otaria ursina, L.*"

I am informed by Her Majesty's Consul at Hakodate that a specimen marked with the same name is to be seen in the museum at that port. Mr. Hall adds that he has been assured by the captains of American schooners engaged in fishing this summer in the open sea off the east coast of Japan that the seals there caught were unquestionably of the same species as those taken in Behring Sea, but that the fur was not quite in such good condition as it would be when the seals arrived a few weeks later at the breeding-ground further north.

I may add that I understand from Professor Milne, who has been kind enough to assist me in answering your Lordship's inquiries, that his paper on Yezo, now before the Royal Geographical Society, contains the latest information on the subject of the fauna of that island.

Full Reports on the subject of the Japanese seal fisheries were sent to the Behring Sea Commissioners in July and November last.

I have, &c.

Signed) M. DE BUNSEN.

Inclosure 1 in No. 1.

Professor Mitsukuri to Mr. de Bunsen.

Science College, Imperial University, Tôkiô,

My dear Sir, *November* 29, 1892.

INCLOSED please find the list of Japanese pinnipedia which I have made up from sources considered to be most trustworthy, and which I believe to be correct as far as the present state of our knowledge goes. As you are aware, the greatest confusion prevails in regard to the scientific names of the species of the pinnipedia, and no two lists will probably give the same name to the same species. I have added the sea-otter to the list, for, although not a seal, it is hunted for its valuable fur just like a seal. I hope that after next summer's explorations a great deal more will be known about the seals of Japan.

I am afraid that I have not been able to convey to you any information which you will find useful. But if you think I can be of any use to you hereafter, I hope you will not hesitate to call in my service. If you publish anything on the seals of Japan, will you kindly favour me with a copy?

I am, &c.

(Signed) K. MITSUKURI.

List.

Ashika = Otaria (Eumetopias). Steller's Sea-lion (*Lessen*). Reported from Kazusa, Sagami Kozushima, Awa (Shikoku), Awaji, Chikuzen, Hokkaidō, Izumo. Hair-seal. Skin not valuable.

Ottosei = Otaria (Callorhinus) ursina, L. Reported from Iburi (Hokkaidō) and the Kuriles, Nambu. Fur-seal. Fur valuable.

Azarashi = Phoca fœtida, Fabr. Reported from Hokkaidō. Fur valuable.

[?] = *Phoca (erignathus) barbata, Fabr.* Reported from Hokkaidō. Rare.

Ruo-o = Phoca equestris, Pall. Reported from Nemuro (Hokkaidō). Rare.

Zeiuchi = Trichecus (Odobaenus) obesus (Illiger). Allen. Reported from Hakodate, Nemuro. The Pacific walrus.

Rakko = Enhydris lutris, L. (sea-otter). Reported from Hokkaidō (the Kuriles). Fur very valuable.

Inclosure 2 in No. 1.

Mr. Snow to Mr. de Bunsen.

(Extract.) *November* 30, 1892.

WITH regard to the information you ask for about "fur-seals," I may say there is but one species in the *North* Pacific known to naturalists, stuffed specimens and skeletons of which are to be found in all the home museums—*Callorhinus ursinus.* Breeding rookeries of this animal on St. Paul and St. George Islands of the Pribyloff group, and Copper and Behring Islands of the Commander group in the Behring Sea.

Outside Behring Sea there are Robben Island, 11 miles south-west by south from Cape Patience, Saghalin, St. Jonah Island, 118 miles north of Saghalin, and Raikoke Island, Mushir Rocks, and Srednoy Rocks in the Kurile chain of islands. The St. Jonah, Raikoke, Mushir, and Srednoy, never large, now are almost deserted.

At Robben Island there are probably from 50,000 to 80,000 seals during the season.

The fur-seals leave their rookeries and make their way south about end of October or early in November.

Those from the Pribyloff Islands pass through the Aleutian chain, and spread over the ocean off the American coast as far south as California from December to June.

Those from the Commander Islands, Robben Island, and the other small "rookeries" on this side chiefly keep to this side the Pacific, and in December, January, February, March, April, May, and part of June are to be met with in large numbers off the south-east coast of Yezo and the east coast of this island from Inuboye northwards from 20 to 150 miles off shore.

A considerable number are also to be found in the Japan Sea during the winter and spring as far south as Tsushima.

No. 2.

Mr. de Bunsen to the Marquis of Salisbury.

My Lord, *Tōkiō, August* 10, 1892.

WITH reference to Mr. Fraser's despatch of the 19th November, 1891, reporting that he had forwarded to the Canadian Government, as desired by your Lordship, a Report on the subject of the Japanese seal fisheries, I have now the honour to transmit copy of an interesting despatch in which Her Majesty's Consul at Hakodate calls attention to a new development of this pursuit, which has been limited hitherto to sudden descents on the hauling grounds of the Kuriles and to poaching expeditions to Russian waters.

Mr. Hall states that four American schooners have this summer resorted to the waters lying within 50 and 100 miles of the north-east coast of Japan for the purpose of pelagic sealing, and have met with such a fair measure of success as will probably attract increasing numbers of these vessels in future.

I have forwarded a copy of Mr. Hall's despatch to Lord Stanley of Preston.

I have, &c.

(Signed) M. DE BUNSEN.

Inclosure in No. 2.

Consul Hall to Mr. de Bunsen.

Sir, *Hakodate, August* 4, 1892.

IN view of the interest now attaching to the subject of seal-hunting in the northern part of the Pacific Ocean, I have the honour to bring to your notice a new development in that business.

The fact that the fur-seal in its summer passage north to Behring Sea passes up along the east coast of Japan in a line of from about 50 to 100 miles off the land has now been grasped by a few enterprising American sealers, and in the course of this summer four schooners from San Francisco, flying the United States' flag, came straight across the Pacific Ocean in order to catch the itinerant seals at this side. Their names and the amount of their respective catches were:—

"Bowhead," 500 seal-skins.
"Sophie Sutherland," 1,580 seal-skins.
"A. J. Algar," 1,517 seal-skins.
"Kate and Anna," 1,252 seal-skins.

The schooners followed the migrating herds from about 34° to 44° north latitude, each provided with six to eight small boats, manned with a hunter in the bows and two rowers. These small boats put out each morning and cruize within sight of the schooner, returning in the evening with their take. The hunters are provided with a double-barrelled shot-gun, a rifle, a harpoon, and a grappling-hook. They use buckshot, and, being skilful marksmen, they seldom fail to kill the seals at the first discharge. Only about 10 per cent. of those shot are lost by sinking before the boat can row up close to them, and these are mostly gravid dams.

You are, of course, aware that for many years past the sealing-schooners that have fitted out at and sailed from Yokohama generally return with a large take of skins, but these have relied mainly, if not solely, on land poaching, making drives on the swarms that haul up for breeding purposes at Robben Island or the Kuriles. Pelagic sealing on this side is a new departure, rendered possible by the superior shooting of the American hunters. The success of the four pioneers this season has been such that a rapid increase in their numbers may be confidently predicted for next and following years.

I have, &c.
(Signed) T. C. HALL.

APPENDIX II.

Further Miscellaneous Correspondence and Memoranda.

1. HAIR-SEAL FISHERY IN THE NORTH ATLANTIC.
2. SHEEP AND CATTLE.
3. DEER.
4. MAMMÆ OF THE EARED SEALS (*OTARIA*).
5. MEMORANDA ON SEALS BY MR. BARTLETT.
6. FUR-SEALS IN PORTLAND CANAL. CAPTAIN COGHLAN, R.N.

1. HAIR-SEAL FISHERY IN THE NORTH ATLANTIC.

No. 1. Memorandum by Sir George Baden-Powell.

No. 2. Letter from Captain David Gray, Peterhead.

No. 3. Letter from Mr. Bruce, Dundee.

No. 4. Memorandum by Rev. A. Harvey.

No. 1.

Memorandum on Visit to Dundee and Peterhead in September 1892.

1. IN September 1892 I determined to visit Dundee and Peterhead, with the object of seeing the sealing-vessels and their equipments, and learning by personal inquiry how far the natural history of the hair-seal agrees with that of the fur-seal, and as to the adequacy and effects of the Regulations for seal preservation set up off the Labrador and Greenland coasts respectively. I also expected to glean information as to the projected expedition to the Antarctic.

2. At both places I inspected the various vessels in port, and the "Arctic" stores, with all the implements, gear, &c., as also the tannery and "fur and hide" manufactory in Dundee.

Dundee.

3. In Dundee, among those who gave me much detailed information were Mr. W. Stephen, the proprietor of the tannery; Mr. Kinnes and Mr. D. Bruce, managers of whaling and sealing fleets; Captains Fairweather, Guy, Davison, and Robertson, well-known whaling and sealing masters: and Messrs. Leng, M.P., and Malloch, of the "Dundee Advertiser."

4. Among miscellaneous items I noticed that the club used for killing seals has a double head of iron, with flat chisel-shaped striker for killing, and a curved pick for hauling the carcases on the ice. The staff is slight, and about 5 feet in length. The skins are salted. The old seals average 10*s.* per hide, and the young "white coats" from 5*s.* to 7*s.*, these latter being dressed as furs. In Mr. Stephen's factory is made excellent leather for saddles, shooting-boots, harness, upholstery, and fancy goods out of seal and beluga skins. The "white coats" also are dressed into very serviceable furs, known as "Greenland fur," and selling for one-tenth the price of "Alaska fur." Mr. Stephen explained that these furs did not become an article of common use in England till thirty years ago.

5. In regard to North Atlantic experiences, I learned generally that the Regulations set up for the *Newfoundland* fisheries have yielded excellent results, especially because the close time has both a beginning and an ending. Seals are as plentiful as ever. In this region and off the coast of Labrador the sealing is carried on when the seals come out on the ice to breed at a certain date in the spring, after which they go travelling to feed right up to Davis Straits and Spitzbergen, perhaps 1,500 miles away. The females are served within a month after pupping. The pups suckle for about ten or twelve days, and after that their mothers hurry them into the water for fear of the hunters, and their growth being phenomenally rapid—"you can see them growing"—they at once begin to live on what they catch. Captain Davison and others were absolutely "sure" that they do not suckle longer than this. There is no killing at sea whatever.

6. The skin with the blubber jacket is taken to St. John's, Newfoundland, where the blubber is tried down by heating, and the oil shipped with the salted skins to England, where the latter are dressed. The refuse salt, full of oil, &c., is in great request for farmers.

7. In regard to the *Greenland* fishery, chiefly around the Jan Mayen Islands, all were agreed that the International Regulations were set up when too much damage had already been done by excessive and indiscriminate slaughter, and in addition, that a chief cause of damage now is the fact that, owing to the opposition of the Norwegians, no close was fixed for the fishing season. The consequence is that the fishery is now practically worthless, and commercial extermination threatens. Norwegians and others continued hunting and shooting the old seals at sea. Early in the year, when the seals are fat, they float after being shot. You can secure them even after firing from the ship, as there is plenty of time to lower a boat; but later on in the season, when they have lost their fat, probably not one in three that is killed is secured. The seals obtained at sea are usually females, and about 2 years old, as these "lie" best.

8. With regard to Dundee sealers, the usual practice is to go to the sealing-grounds early (in March and April), to discharge the seals at St. John's, Newfoundland, and then to go up whaling in Davis Straits, &c.

9. In regard to the Regulations, there is no need whatever for any police, because it has been found in experience that all watch each other jealously and that with such numerous crews no infraction of the Regulations can long remain unknown.

10. "White coats" (pups) first became of value when Mr. Tussaud invented a process, by means of plaster of Paris, of keeping the hair in position while the skin was removed and india-rubber substituted, thus making an artificial fur. But this process has now been abandoned.

11. In reference to the *Antarctic*, I found that, in consequence of the disturbance of whaling in the North Atlantic, chiefly owing to the more general use of steam, which scares all the "right whales," it was determined this year to dispatch four whalers to follow in the track of Sir James Ross' third voyage, with the especial object of discovering whether black whales were to be found in any numbers, and whether they produced sufficient whalebone (whalebone having gone up in price from about 400*l.* per ton fifteen years ago to 2,700*l.* in 1892). In Dundee it is sold chiefly to wholesale drapers.

12. These four vessels are to rendezvous at the Falkland Islands, and then proceed towards Enderby Land, while a Norwegian vessel, the "Jason," is to hunt down the coast of Graham's Land. They expect to be away eight months, returning in June or July 1893. Two medical men accompany the expedition, and will make a variety of scientific observations.

13. All very willingly promised me to collect actual specimens of animals, and especially to look out for fur-seal, and if they find frequented rookeries, they intend to take possession of the territory, with the view to establishing a breeding-ground, and making permanent profits by excluding others and preventing indiscriminate slaughter.

14. They all agreed that the use of steamers scares whales. More than one of the captains described that on a calm day—the very day for whaling—he has been among the whales with every prospect of great success, and got his boats out. But some whaler spies this from his crow's-nest, and comes steaming down, when the whales at once disappear "as if by magic," owing to the thuds of the engine. The same effect has been noticed as the Norwegian steam-sealers pass to and fro over the whaling-grounds in Davis Straits.

At one time all the captains agreed never to use steam while on the "grounds," except for some urgent necessity. But individuals were always discovering reasons of urgent necessity, and so the mutual understanding came to be abandoned.

Peterhead.

15. At Peterhead I went over the vessels and stores, and learned a great deal from Captain David Gray (the most successful of the sealing captains) and Captains Salmon and Murray.

16. *Captain Gray* gave me full information on many points. He said that the chief value of a seal was its blubber and hide, but that an additional incentive had been added when *furs* came into general wear twenty or twenty-five years ago for ladies' dress. Thus, twelve years ago, the skins of the "white coats"—the grey pups—came to have a value of from 3*s.* to 7*s.* for making up into a fur known as "Greenland seal." He saw some at Whiteley's, and was told by the attendant they were "Royal fur." The Royal Artillery busbies are made of it. Some years ago a Mr. Tussaud took the hair off the pelt and fixed it to india-rubber; but there was an unpleasant odour, and so it never succeeded commercially.

The skins are much used as hides, for furniture and saddles. Females are preferred, because the males are so much torn and lacerated by perpetual fighting.

17. In regard to the seals themselves, the bulls are about the same size as the females, but with different shaped heads. The females get out on the ice first, and drive off the males until they have had their pups, usually about the 20th to 22nd March. They suckle up till about the 10th April, and would suckle for fifteen to eighteen days, but the hunters come along, and the pups are hurried into the water, where they manage to feed themselves within three weeks of birth. Has seen miles of black pups on the edge of the ice. After suckling, they are "as fat as pigs, and full of cream," on which they live till they become quite thin, and then they take to the water.

All coition takes place in the water. "Have never seen but one case on the ice; have seen thousands in the water." After bearing pups and serving, the mature females and males lie about on the ice for six weeks without eating—from the 25th April to the end of May. "The female begins like a fat woman, and gradually gets to look like an eel." Both sexes get very thin. At last they go away for all the summer 1,000 to 1,500 miles—all the way up to Spitzbergen and Franz Joseph Land and up Davis Straits. He has found seals in Franz Joseph Land with Labrador slugs in their skins. When a nursing mother comes along all the pups go to her, but she bites and scratches at them, and will only allow her own to suckle. In regard to getting seals when they are on the ice and get scared, they crowd along the edge, and you will only get two out of three shot, because they dive and sink. Has seen any number of dead seals floating about. Never shoot at sea, because they would sink.

18. In regard to the industry, it began in 1787 from Peterhead. In 1806 there were fifty-two vessels, taking 104,000 seals. Thirty years ago (1860) there were twenty-eight to thirty sail of from 100 to 300 tons. Captain Gray showed a carefully-kept list of all vessels, with their catches, &c., sailing each year from Peterhead. Used to get an average of 5 to 20 whales, and from 1,000 to 15,000 seals, on a lucky voyage. Before the Regulations were first instituted they were getting 180 tons of oil per ship, but they regularly killed lots of mothers in pup or nursing, and the pups were left to die. There ought to have been a day fixed for closing the fishery.

19. As for police, no one did wrong, because every one would peach. Has seen all the vessels waiting along the ice till 12 o'clock, and then all begin with a great rush.

20. Steamers have scared whales effectually; they never seem to get used to them. When the steamers leave, then the whales are out again to sea.

21. *Captain Salmon*, another successful Peterhead sealing captain, told me much, especially in a long private conversation. Generally, his statements were to the following effect:—

The breeding males and females arrive about the same date at the ice, and copulation takes place very soon after the pups are born. Thinks it probable that after ten or twelve days pups are done with suckling; they are then full of milk, and fat, and go off and crowd together on the edge of the ice for many days. They live on their own fat, and gradually get thin, and from the 10th to the 20th April they begin to take to the water and to feed themselves.

22. The shooting in the water is easy at the beginning of the season, because they are fat and do not sink. They are often shot then in the water; it depends on the particular season whether they are shot on the ice or in the water most; but even on ice two wounded seals get away for every one that is taken. They dive and you do not see them again. Has "picked up a good few dead ones" in early part of season which had been shot by others and floated up because fat. Has seen some floating dead because "blown out."

Early in the season nearly all that are killed are females. Later in the season they are males.

23. As to summer migration, he has seen lots of seals from Newfoundland up in Cumberland Gulf and the fiords in Davis Strait—the water alive with them, but they will not let man get near them. Some sort of small white fish entices them up there.

24. Natives in Cumberland Gulf have a curious method of taking seals. Has often been out with them himself and seen it. The seal, while ice is forming, makes in the ice a cavity, with shelf for new-born young, and hole for exit into the sea below about 1 foot below surface of sea, making a small breathing-hole in ice above. The natives take a dog who scents the breathing holes, and shows whether seal there or not. Native approaches suddenly and jumps on ice, breaking through into cavity, the broken ice blocking the exit-hole below. Often the old seals have not time to escape, and the pups are always captured.

25. *Captain Murray* gave much interesting information from his experiences.

In regard to seals, in shooting them on the ice, you cannot get much nearer than 50 or 60 yards, unless, like the natives, you crawl up clothed in a skin to within 10 yards. All depends on the first shot you fire, as at the shot all the seals look up, and if the one aimed at drops dead, others lie down again; but if he is only wounded, he is off and dives, and so do all the others. Has seen seals on ice up to July, and even August, but after May they get wilder and wilder, and you cannot get near them. In shooting seals on the ice you do not get on the average more than one in three hit.

26. The hooded seal (*Phoca Grœnlandica*) and floe-rat (*Phoca fœtida*) do not eat while they are on the ice in June and July. Has never seen any dung on the ice occupied by them. The harp seal (*Cystophora cristata*) certainly eat during this season, especially at night. In May and June has seen the whole ice space one mass of dung, like cow-dung, with white shrimps, their favourite food, and fish remains, all over the floe.

Has seen many dead seal floating; gets them sometimes. Birds tear them and eat them floating, and so do sharks.

27. Steam takes whalers and sealers up so early and certainly that they can destroy all mothers and pups; best if no steam allowed.

(Signed) GEORGE BADEN-POWELL.

September 1892.

No. 2

Mr. Gray to Sir G. Baden-Powell.

Dear Sir, *Peterhead, September* 26, 1892.

I HAVE the honour to acknowledge the receipt of your letter of the 24th instant, and have much pleasure in answering your various questions as to the habits of the Greenland seal.

1. Does a male serve more than one female; if so, how many?

A male hair-seal will no doubt serve as many females as he can get, but it is difficult to say, because all the serving is performed in the water, but judging from the number of male seals seen in the water watching a single female lying on the ice, they have to fight very hard indeed before they can obtain a single female; this state of matters has been caused by slaughtering such vast numbers of female seals during the breeding season when the males are absent.

2. At what age do males begin and cease to serve females?

I don't know this.

3. At what age do females begin and cease to bear young?

Females begin to breed the third year; not known when they cease.

4. For how long do pups suckle, *i.e.*, how long after birth are they weaned and procure their own food?

The bulk of the young hair-seals are born from the 20th to the 22nd March. The mothers will have all left them by the 10th April, the young ones in the course of a few days disappearing from off the ice on which they were born, and gradually dispersing themselves towards the sea.

5. Are there any good records of the numbers that have been taken annually?

We have a complete record of the number of seals that have been taken by Peterhead ships; no doubt Dundee will have the same, but should think it would be difficult to obtain from Holland, Germany, Denmark, Sweden, and Norway the number of seals that have been caught by them from first to last.

I think I have answered your queries as fully as I could in a letter, but if I have omitted any point that you would wish fuller information upon, I will be glad to do so to the best of my ability.

I am sorry that I cannot write to you personally, having a bad attack of gout in my right hand.

I have, &c.

(For David Gray),

(Initialled) W. P.

No. 3.

Mr. Bruce to Sir G. Baden-Powell.

Dundee, July 23, 1892.

Sir,

I DULY received your communication of the 30th May last, requesting information as to the working of the measures adopted in the North Atlantic and Greenland Seas for the preservation of the seal-fishing.

I regret your letter has been overlooked so long, and now beg to submit the following:—

1. The seal-fishing in Greenland and for Jan Mayen seas for many years previous to the Convention gave such unsatisfactory results that my Company gave up prosecuting that fishing in 1877, and have since employed their vessels at the seal-fishing in the Newfoundland seas.

2. In my opinion the close time was too long in being enacted in Greenland, and great evil was done; in fact, the seals were almost exterminated before the Act was passed in 1876.

3. It was a great mistake when the Act was passed fixing a date (the 3rd April) for commencing the seal-fishing not to have at the same time fixed a date for closing the fishing. The result is that, after the young sealing is over, *i.e.*, when the packs are broken up and young seals have taken the water, the fleet follow up and continue hunting old and young seals all the summer months, indeed, until driven home by stress of weather, thus "killing the goose," &c. The beneficial effects of the Act have therefore been very much interfered with; in fact, it is doubtful if any good has resulted in so far as increased catches are concerned.

4. The Act in Newfoundland regulating the seal-fishing stipulates that no vessel can clear at the Customs for that fishing before the 10th March, and no seals can be taken before the 12th March or after the 20th day of April. I understand an Act has just passed the Newfoundland Assembly still further restricting the seal-fishing.

5. There has been no difficulty whatever in carrying out the Regulations in Greenland. Neither has it been found necessary to employ any "police, &c.," for the purpose of seeing the Regulations carried out. The ships in the trade act as a watch on each other, and the captains must make an entry in the official log, duly signed by the officers, showing the date and hour on which the first seals are taken.

If there are any other points or questions you would like my opinion on, I shall be glad to hear from you, and shall be very pleased if I can assist you in any way in your investigations.

I am, &c.

(Signed) DAVID BRUCE, *Manager,*
Dundee Seal and Whale Fishing Company.

No. 4.

Memorandum by the Rev. A. Harvey, Secretary of Newfoundland Fishery Commission

NEWFOUNDLAND SEAL FISHERY.

1. *Number of Seals taken in the Years named*

Years.	Number of Seals.	Years.	Number of Seals.
1860	444,202	1881	447,903
1861	375,282	1882	178,812
1862	268,426	1883	322,602
1869	359,821	1884	266,290
1871	537,094	1885	238,596
1872	278,372	1886	272,656
1874	398,366	1887	230,355
1876	341,292	1888	286,464
1877	451,678	1889	335,627
1878	409,658	1890	220,321
1879	457,855	1891	364,851
1880	223,793	1892 (approximate)	391,000

2. *General Features.*

Seals suckle their young on the ice for five or six weeks. The young are born on the ice from the 15th to the 25th February. The mothers go off each day feeding, returning at night to suckle the young. After the 1st April the young seals begin to take to the water. In a fortnight or three weeks after the males and females come together for copulation, and after that start on their northern migration. There is no evidence to show whether they feed during the rutting season. Judging by the analogy of other animals the probability is the males do not feed, or eat little. A female seal becomes reproductive in its third year.

The "white coats," or young harp-seals, are slaughtered indiscriminately, there being probably an equal number of males and females. Old seals are killed indiscriminately. It is calculated that for every old seal taken two are wounded and escape to die. The great danger to the seal fishery is the slaughter of the old breeding seals. The partial prohibition by law of second trips has already increased the catch. The killing of old seals should be entirely prohibited.

For the natural history of the seal, see "Newfoundland—the oldest British Colony," p. 260. Also see "Seal Fisheries of the World," "Encyclopædia Britannica."

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2. SHEEP AND CATTLE.

(*a.*) Questions and Replies as to Breeding.

(*β.*) Cattle- and Sheep-breeding in Scotland.

(*a.*) *Questions in relation to the Breeding of Animals, with Replies from the Department of Agriculture in London.*

1. At what age does the (*a*) male and (*b*) the female become of service for breeding purposes in the case of cattle, sheep, and horses?

2. How many seasons is (*a*) the male and (*b*) the female in each of these animals efficient for breeding purposes?

3. Does the male after becoming incapable of efficient service through exhaustion or impotence otherwise retain his bodily vigour and fight for control of the females, and endeavour to prevent their being served by rivals? (This would probably only apply to sheep.)

4. Does virile exhaustion occur earlier in the case of animals where the number of services is not controlled than in the case of animals where it is controlled? And is there any difference between the total effective services in the two cases? In other words, does the racing stud horse, who serves only thirty or forty a season, last longer and serve more during his career than the ordinary tramp stallion who is allowed to serve as many mares as can be got for him?

5. Any information on any of the foregoing points, or the points already answered as to number of services in a season, in the case of *deer*, would be very valuable.

Replies.

1. Horses and mares, 2 to 3 years old. Cattle, both sexes, about 1½ to 2 years. Sheep, both sexes, 1 year.

2. Stallion up to twenty if not over-used. Mare, fifteen to twenty. Bulls are generally killed early in life; occasionally they serve up to eight or ten. Cows, up to ten or twelve. Sheep, two to three years.

3. No, I think not.

4. Yes, in the case of the male. The females, of course, are not affected by this rule.

The following is about the average number of females of each class of animals which can be efficiently served in one season by one male:—

A stallion can serve fifty to seventy mares.

A bull thirty to fifty cows.

A shearling ram about sixty ewes, but this class of animal falls off rapidly in its power of fecundity. The second year half the number of ewes would be above the average.

(Signed) ALEX. C. COPE.

September 19, 1892.

The numbers I gave are the average between the pure-bred animals and the half-bred. For instance, with very valuable stallions, the number rarely exceeds fifty, but with less they sometimes serve as many as 100 mares in a season.

The owner of a pure-bred bull would be quite satisfied if he got twenty-five or thirty cows in calf. The ordinary farmer would expect his bull to serve fifty cows if he could get them in the neighbourhood.

As regards sheep, it is a remarkable fact that Downs and black-faced rams generally appear to be more vigorous than white-faced, such as Leicesters and Cotswolds, and they can efficiently serve double the number of ewes. The white-faced might be put at 50, and the black at 80 to 100, but only while shearlings.

(Signed) ALEX. C. COPE.

September 20, 1892.

(3.) Cattle and Sheep-breeding in Scotland.

Mr. Macalister, Overseer to Sir W. Hozier, Bart., Mauldoltie Castle, Lanarkshire.

(Notes of Conversation with Mr. Macalister, by Sir G. Baden-Powell.)

Cattle.

In Lanarkshire the custom is to sell cows to the butcher after five or six years' calving; for if you go on breeding from cows till 8 or 9 years old, because they are good breeders, you get a lower price in the end from the butcher.

In Lancashire the custom is to kill after two or three years' calving, otherwise the chance of milk fever becomes very great, and makes the cows less likely to fatten well when wanted for the butcher.

Sheep.

Rams.—On mountains one ram will serve sixty ewes in about four or five weeks. During this period the ram eats but very little, and gets very poor towards the end—often so exhausted as to be with difficulty pulled round.

Ewes in milk—if "kindly" and full of milk—will take to others' lambs easily if their own die. Has seen such ewes steal the lambs of others, for instance, one of a pair of twins. If not full of milk, ewes will often refuse to feed even their own lambs. All depends on how full of milk and well they are.

Ewes are usually sold to the butcher after two or three years' breeding, so that they can get fat. In addition, ewes after that age do not breed, as a rule, so well or so certainly. Some will go on all right till 5 or 6 years o'd, but most do not. Some are sold for another year or so of breeding elsewhere under new conditions of pasture or climate. But the great point is to sell for killing while they can still fatten readily.

3. DEER.

No. 1. Memorandum by Superintendent of Richmond Deer Park.

No. 2. The Wild Deer of Exmoor, by Lord Ebrington.

No. 3. Note from Forest of Glen Tana.

No. 4. Note from Forest of Invercauld.

No. 1.

Notes on the Breeding of Deer.

IN dealing with a herd of deer, the object is to obtain a maximum supply of venison with a minimum of deer, the expense of winter feeding being considerable.

Taking, for example, the herd of deer at 100, the proportion of males should be 56 to 44 females.

These would be made up of—		6 to male fawns.
8 male fawns.		6 1 year old.
8 1 year old.		6 2 ,, ,,
8 2 ,, ,,		6 3 ,, ,,
8 3 ,, ,,		6 4 ,, ,,
8 4 ,, ,,		5 5 ,, ,,
8 5 ,, ,,		5 6 ,, ,,
8 6 ,, ,,		

There would thus be seven or eight bucks to be killed in each year, according to the favourableness of the season or the healthiness and well-being of the herd, and five or six does, making a total of twelve or fourteen deer to be annually killed.

From a commercial point of view the buck venison is the most valuable, and it is desirable to have rather more bucks than does. It is found that there is perfect safety in keeping this proportion of males.

Some owners of parks prefer to have a large winter supply of doe venison, and then the proportion of does will be greater, to allow of more being annually killed.

It is not good economy to keep a doe after she is 7 years old; her milk-producing power falls off, and the fawn is consequently less vigorous in constitution; therefore every year the fawns of the older does are killed about a month from their birth, that is, in the month of July. It is a common thing to find the fawn of the previous year following the doe till she gives birth to the new fawn, and if the young fawn is killed immediately after its birth, the doe will allow the 1-year-old to suck her, but she

will not under any circumstances suckle the fawn of another doe, or an orphan fawn. After the fawn at about a month old is killed, the doe's milk dries up, and she comes early to rut in October. After this she rapidly improves in condition, and is killed fat venison in November or December, about six weeks after she has been served by the male.

From about the 10th October in each year the oldest and finest bucks in the herd take up certain positions in the park, where they scrape the earth into shallow basins, and make a noise, called "groaning" or "treating," and await the does as they come into season. There may be seen a row of bucks, each with some seven or eight does, which he carefully guards and holds against all comers. He does not leave his post for a fortnight or three weeks, unless he is driven away by a stronger buck; he never appears to sleep, and subsists almost entirely on the few leaves or acorns that fall from the trees, so that from being a fine fat animal he becomes little more than skin and bone.

The younger bucks may be seen hanging on the outskirts of the rutting ground, and they occasionally capture a doe that has escaped from the harem. They also take the places of the older bucks as they become exhausted by rutting.

There is little doubt that a vigorous buck would serve thirty does, but a large proportion of bucks in the herd creates rivalry, and only the strongest and finest bucks hold their position, and so the size and vigour of the herd is kept up. It would be fatal to the maintenance of a good herd of deer if due care was not taken to insure a good succession of males, and in killing off the surplus fawns the finest males are left for stock.

It is also necessary to kill the oldest bucks as they attain to maturity. If the 4- and 5-year-old bucks were killed instead of the 6-year-old, there would soon be an utter deficiency of buck venison. After 7 years old a buck will deteriorate in quality, his horns become smaller, he loses muscle, and altogether decreases in bulk.

The non-breeding deer, consisting of the younger animals, herd together on the outskirts of the rutting-ground.

(Signed) HENRY G. SAWYER,
Superintendent, Richmond Park.

November 1, 1892.

A small number of bucks are annually castrated in February or beginning of March to supply the Royal table when the bucks are in rut, and before the doe venison is ready. The operation is generally performed when the buck is 5 or 6 years old; within ten or twelve days of the operation he will shed his horns, and immediately new ones begin to grow: these he never sheds, and the horns remain soft, or in velvet, as long as he lives. The male fawns are sometimes castrated, and then they never have any horns at all, and are never so large as the entire buck, or as those that have been castrated at 5 or 6 years old.

No. 2.

The Wild Red Deer of Exmoor: by the Right Honourable the Viscount Ebrington, Master of the Devon and Somerset Stag-hounds.

Replies to Sir G. Baden-Powell's Questions as to the Wild Red Deer in Devon and Somerset.

1. THE wild red deer in the country hunted by the Devon and Somerset staghounds have never been under any sort of control, nor can they be said to be "watched," though there are many people in the country—farmers, keepers, &c.—who keep an eye to the deer in their own neighbourhood with a view to giving information to the Master of the Hounds when he meets within reach. The only person whose business it is to do this is the "Harbourer," but he lives at one end of the country, and during most of the year sees little of the deer except those in his immediate vicinity. There has been a "Harbourer" in the pay of the Master of the Hounds since 1855, but he has other duties besides watching the deer.

2. The great bulk of the red deer in this country are to be found within the area—roughly speaking, 30 miles long from east to west by 15 miles wide—inclosed by a line drawn on the west from Martinhoe to Swymbridge Station, and on the east from Dunster to Wiveliscombe, the Bristol Channel forming the northern, and the Devon and Somerset Railway the southern, boundary.

Within this area are two tolerably distinct herds, divided by the cultivated land that runs northward from South Molton Station to Exmoor, and eastward from Simonsbath on Exmoor to the Brandon Hills.

The southern herd ranges westward as far as Molland Station, northward as far as Exford, thence in a south-easterly direction to Clatworthy; but nine-tenths of the deer belonging to it have their home on the banks of the Barle, Exe, or Haddeo.

The northern herd occupies the rest of the district described: a line drawn from Bossington Point to Cutcombe, thence to Brendon, and from that point to the sea at the county boundary incloses their stronghold.

There is nothing to prevent the deer of these two herds interchanging freely, but, as a matter of fact, there are only three places where they naturally cross into each other's dominions namely, at the south-west corner, where deer from the Bray Valley meet deer from the Molland covers above South Molton Station, and *vice versâ*. At a point a little east of Exford, where deer cross between Dunkey Beacon and Winsford Hill, and again, still further to the east, where they pass between Haddon and Lype Common.

Though the hounds are out from seventy to eighty days every season, it is seldom that deer cross the belt of separation more than once or twice, and their crossing it at points other than those mentioned is still more exceptional.

It is very rare for stags or hinds of the one herd to mate with the other, though there is little doubt it occurs occasionally. Earlier in the century, when the country was more open, they probably mingled more freely.

Beside the two herds mentioned above, there is a small semi-detached herd about Stoodleigh, between Dulverton and Tiverton. This is an off-shoot from the southern herd, and though cut off from the latter by the Devon and Somerset Railway—a thing which deer hate crossing—there is some little communication between the two.

There is also a detached herd on the Quantock Hills, east of the West Somerset Railway. This herd, unlike the others, which have existed time out of mind, is of modern and artificial formation. It had its origin, according to Mr. Edward Stanley, M.P., of Quantock Lodge, about 1850 (year uncertain), when the red deer in a neighbouring park were sold. Some of them were bought for St. Audrie's Park, and others were turned out on the hill. The herd was, however, very small indeed, till the late Mr. Bisset recruited it with deer captured in the Exmoor country. Occasionally one of the deer may get out of St. Audrie's Park, but except for this the Quantock herd keeps itself to itself entirely.

As to numbers, an estimate founded on the number that has been killed for some years past, without apparently diminishing the strength of the herds, gives—

		Head.
In the northern herd	About	200
In the southern	„	140
About Stoodleigh	„	10 or 12
On the Quantocks	„	40 or 50

Or about 100 more or less of all ages altogether.

The district frequented by the Quantock deer is barely 10 miles long by 4 miles wide.

3. We have approximately as many male deer in the country (of all ages) as female. The competition for the hinds is consequently too keen for one stag to get many. It is rare for a stag to be seen in company with more than eight or ten hinds at the outside, and half that number is more common.

4. Stags hardly give themselves time to eat in the rutting season; and their attentions no doubt interrupt and interfere with the feeding of the hinds; but, so far as can be ascertained, the latter do not lose condition to anything like the same extent as the stags.

5. In the last five seasons there have been killed with the stag-hounds: 125 stags, 123 hinds of all ages, 9 young male deer, and 16 whose sex was not ascertained.

Besides these, a few deer come to grief every year by accident. It may safely be assumed that their numbers are diminished by thirty of each sex every year over and above those who die from natural causes. There must be some of these, though their bodies are hardly ever found.

6 and 7. It is quite impossible to say at what age a wild stag ceases to serve, or a wild hind ceases to bear young.

8. It is impossible to say whether hinds do or do not suckle the young of other deer. They go on giving milk till they are quite heavy in calf, and a hind who has had a calf this year, but is not got in calf this rutting season, will go on suckling this year's calf till it is a year old. It is said that yearlings suck the hinds as well as the calves, but probably only if the calf has died.

We constantly kill milking hinds before Christmas, but there is no reason to suppose that the calves suffer specially in consequence. Either they are none the worse for being weaned prematurely in this summary fashion, or else they are helped by foster-mothers; the latter is unlikely, or hinds would be seen with two calves following them, a circumstance of which there are only one or two instances on record. There are a few undoubted cases of hinds having twins.

9. The great bulk of the covering is done in the last three weeks of October, and the great bulk of the calving between the 5th and 25th June, but there are cases on record between 1883 and 1888 of hinds calving or being seen with very young calves twice in January, twice in September, and once each in March, August, and November.

10. After the rutting season the stags herd together, and the hinds, calves, and yearlings do the same.

Twenty stags have been seen together in the open, and over thirty hinds and young things, but the herds are seldom as big as this.

They keep together thus, more or less, the hinds till they are near calving, the stags till their new horns are beginning to grow. After the calves are dropped, and the horns approach maturity, the hinds and stags begin to herd together again, hinds with hinds, and stags with stags, but only in small lots.

Old stags, though they may have young stags with them, are seldom found in company with other old stags till the approach of the rutting season; it is rare, however, that a stag is so much alone that he can be drawn for with the pack without risk of hounds rousing other deer, and dividing on them.

(Signed) EBRINGTON.

October 11, 1892.

No. 3.

Notes on the Breeding of Deer, Invercauld Forest, Aberdeenshire.

I BEG to send the following replies to the questions submitted me by Sir George Baden-Powell, giving the results of our experience in Invercauld Forest:—

1. The proportion of stags to hinds killed yearly is about 50 per cent., that is to say, for every 40 to 50 stags 100 hinds are killed in the year.

2. Stags abstain from food during the rutting season, but from necessity rather than inclination, as all their time and energies are taken up with keeping their hinds together, and fighting and chasing away other stags. When these stags do eat, they subsist chiefly on Alpine moss.

3. The young, whilst suckling, during the first fourteen days, lie for the greater part of the day in the most sheltered and hidden spots they can find, and during the day their mothers will sometimes stray from them as far as 3 or 4 miles. Generally speaking, the young suckle for nearly a year, though after three or four weeks they may sometimes be seen commencing to eat a little grass. Should their mothers have no other young in the interim, they sometimes suckle for two or even three years.

4. At the commencement of the rutting season a fine strong stag may have as many as 80 or 100 hinds with him, but as the season progresses these large numbers greatly decrease, falling even to one or two hinds.

Out of the rutting season stags for the most part lead solitary lives. The young stags, however, from about 1 to 3 years old, associate with the hinds. Stags have been known to test their sexual powers even before they have well entered upon their second year, though, as a general rule, it would be necessary to add on a year or two.

5. Hinds of 2 and 3 years old occasionally bear calves, though here also as a general rule it would be advisable to add on a year or two.

6. The young deer depend for food on their mothers for at least six months, or until their mothers again have young. But quite young deer, barely 3 or 4 weeks old, may sometimes be seen feeding on grass.

7. Both stags and hinds live no doubt to a very old age. An old stag's horns are much smoother and more twisted than a young one's, and they decrease in size as he advances in years. Stags will on occasion, have the same style of horns and the same number of points for as many as five years running, though the weight of the horns may vary with the goodness or badness of the feeding season.

8. Many more young stags than hinds of 1, 2, and 3 years old die of starvation in the winter, owing to the fact that during the rutting season they are driven away from their mothers by the bigger stags, and rarely meet with their mothers again, which leaves them less able to bear a severe winter. A stag is not as a rule worth killing for venison under 7 or 8 years old.

(Signed) OLIVER A. BORTHWICK.

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4. ON THE MAMMÆ OF THE EARED SEALS ("OTARIA.")

DR. J. MURIE: "Descriptive Anatomy of the Sea-Lion (*Otaria jubata*)." Trans. Zool. Soc., Lond., vol. vii, p. 527. (An exhaustive account of the structure, external and internal, of an adult *male* sea-lion from the Falkland Islands, which died in the Zoological Society's Gardens 14th February, 1867, p. 535.)

"*Mammæ*.—In the *Otaria* under description there are four teats in all, and these are distributed in pairs. The hinder pair are 6 inches in advance of the penis, and the anterior pair are again 9 inches anterior to these hinder ones. The two anterior ones are each about 4 inches distant from the median line of the abdomen, and 3 inches posterior to the hinder part of the sternum. The posterior ones differ, inasmuch as they are each but 2 inches distant from the median line. Expressed in other words, the front pair of teats are 8 inches apart, the hinder ones but 4 inches.

"The teats in this male animal are very slightly raised above the surface of the skin; but each of them possesses a long and capacious duct, which passes through the superficial or deep dermal tissues, and can also readily be traced for some distance among the fat."

In describing the anatomy of a young male walrus (same vol., p. 423), Dr. Murie says:—

"Professor Owen notes, as does Daubenton, in the fœtus that there are four mammæ in the female —two abdominal, and two inguinal. I observed the same number in this young male; they were buried, however, in depressions, and not elevated as in the adult male *Otaria*."

W. A. Forbes: "Notes on the External Characters and Anatomy of the Californian Sea-Lion (*Otaria gillespii*)." Trans. Zool. Soc., Lond., vol. xi, p. 225. (Describes a nearly adult male which died at the Southport Aquarium in 1880.)

"There are four mammæ, abdominal in position. The posterior pair, situated about 2 inches from the middle line, are 5·75 inches in front of the opening for the penis; the anterior ones, which lie about 3 inches from the middle, are 10·25 inches in front of these" (p. 227).

The greatest length of the animal from the nose to the hind limbs was 92 inches; the length from the nose to the end of the tail, 81·5 inches.

[Communicated by Sir W. H. Flower, K.C.B., F.R.S., Director of Natural History Department, British Museum.]

5. MEMORANDA ON SEALS IN CAPTIVITY.

Furnished by Mr. A. D. Bartlett, Superintendent of the Zoological Society's Gardens, Regent's Park, London.

1.—Species of Seals.

List of different kinds of Otaridæ and Phocidæ observed on in Captivity.

Otaria.

Otaria jubata, Falklands.
" *Stelleri*, North Pacific.
" *pusilla*, Cape of Good Hope.
" *Hookeri*, New Zealand.

Phoca.

Phoca vitulina.
" *Grœnlandica.*
" *Haliœtus.*
Halichœrus grypus.
" *monachus.*
Monachus albiventer Mediterraneus.
" *Cystophora.*
Cystophora albiventer.
Trichechus rosmarus.

2.—Food.

(1.) *Kind of Fish preferred.*

I have found no difficulty in feeding any of the above species; they will eat almost any kind of fish. I have used whiting, haddock, plaice, flounders, cod, ling, eels, herring, sprats, &c.

(2.) *Size of Fish preferred.*

The fish are swallowed whole unless too large. In this case the animal will seize the fish firmly in its jaws, and by violent jerks from side to side tear out a mouthful, and by repeating this, devour a large fish.

(3.) *Quantity of Fish eaten.*

A full-grown *Otaria* will eat between 20 and 30 lbs. of fish in *twelve hours*, and in a wild state with plenty of exercise I have no doubt would eat a larger quantity.

(4.) *Manner of Seizing, Masticating, and Swallowing.*

I have already stated that none of the family that have been under my care have ever been seen to masticate their food.

(5.) *Periods of Small Feeding or Abstinence.*

I have found sometimes these animals to refuse food *for some weeks* and become thin, and then take freely to feed and soon recover. I have found in the stomachs of those that have died a quantity of gravel stones, and I am inclined to believe that when on land they devour vegetable substances. I may instance the habits of the Polar bear. This animal was said to live entirely upon animal substances, but I find that during the summer they feed upon grass and other green food; they do this in a wild state as well as in captivity.

(6.) *Excrement*

The excrement of all the seals known to me is very similar, *much resembling the excrement of a large healthy dog.* It is tolerably solid, and in colour a darkish slate, and when dry whitish, like dry mortar; it is passed about twice in twenty-four hours, sometimes in the water, but more frequently on land.

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6. FUR-SEALS IN AUGUST IN PORTLAND CANAL, BRITISH COLUMBIA.

Memorandum by Staff-Commander James Edmond Coghlan, R.N., relating to the fur-seals seen by himself and boat's crew, 21st August, 1868, upon some rocky islets, about 8 miles from the head of Portland Canal, British Columbia.

JAMES EDMOND COGHLAN was serving, in the year 1868, as Navigating Lieutenant and Senior Assistant Surveyor of the Admiralty Survey of British Columbia in Her Majesty's hired surveying-vessel the "Beaver." He was detached from the "Beaver" in a boat, with a month's provisions, to make a running survey ("reconnaissance"), as exhaustive as time and circumstances might permit, of Portland Canal and adjacent waters.

In carrying out this duty he landed upon the group of low rocky islets subsequently named Seal Rocks. Approaching out of a bay to the southward, he observed upon these rocks what he believed to be about thirty full-grown fur-seals, which, upon sighting the boat as she came suddenly upon them round the point, took very rapidly to the water. Subsequently, while taking angular measurements with the theodolite on the rocks, several seals came to the surface of the water close enough for their heads to be plainly seen. He recorded his opinion that they were fur-seals from their appearance and the celerity with which they had taken to the water.

At that date he had served seven years in the Royal Navy, and had had opportunities of noticing the appearance and movements of hair-seals. He had seen fur-seal skins brought by the Indians to trade at the Hudson Bay Company's post at Fort Simpson (Port Simpson) and at the Indian camps about 10 miles up the Nass River, which flows into Observatory Inlet abreast of Portland Canal. He had previously seen at San Francisco the seals called sea-lions. Therefore he believes that he was able to distinguish between hair-seals, fur-seals, and sea-lions.

The foot-note relating to fur-seals which appears in the Admiralty Sailing Directions for Portland Canal was recorded by him as an item of interest in the same way that the geological formation of the coast, nature of the flora or fauna, customs of the natives met with, &c., were recorded.

His remarks, noted at the time, concerning the seals, were:—

"They were about 6 or 7 feet in length, and when taking to the water used their hind feet. While observing on Seal Rocks, some of the seals came to surface, but we did not shoot any. They were ear-seals—like sea-otters."

He believes that the seals seen by him were fur-seals, his opinion being based upon the following data:—

1. That he recorded his observations at the time as a matter of ordinary professional detail, with a view to his notes proving of service to any officer deputed to write sailing directions for those waters.

2. That he believes he was able, as the result of his own knowledge and experience, to discern the distinctions between fur-seals and hair-seals.

3. That the seals seen by him (in August, 1868) were all full grown, about 6 or 7 feet in length, and thirty or so in number.

4. That when making for the water they used their hind fins, which propelled them with celerity, and was in contrast with the comparatively sluggish progression of hair-seals when seen by him under similar conditions.

5. It was observed that the seals had ears.

Signed: J. E. COGHLAN, *Staff Commander.*

Admiralty Survey Office, Chatham Dockyard,
January 10, 1893.

APPENDIX III.

Particulars of Pelagic Catch of British and of some United States' Vessels in 1892.

CANADIAN SEALING FLEET AND CATCH OF SEALS FOR THE SEASON OF 1892.

Statement forwarded by Collector Milne, Victoria, B.C., October 25, 1892.

Vessel.	Tons.	Boats.	Canoes.	Crew.		Catch.		Behring Sea.	Asia.	Total.
				Whites.	Indians.	Lower Coast.	Upper Coast.			
Annie E. Paint	82	5	..	20	..	186	412	..	421	1,019
Aninoko	75	2	12	6	24	21	719	..	..	740
Aurora	41	1	10	4	20	7	371	..	..	378
Annie C. Moore	113	6	..	23	..	164	379	..	447	990
Ariel	91	2	14	7	23	..	268	..	..	268
..	74	7	..	24	..	..	..	..	..	(seized)
Arietis	86	7	..	24	..	..	418	..	738	1,156
Agnes McDonald	107	7	..	24	..	..	501	..	373	964
Beatrice	66	1	10	5	20	115	455	..	..	570
Borealis	37	1	10	5	20	21	486	..	..	507
Brenda	100	7	..	26	..	..	409	..	512	921
Beatrice (Van.)	49	5	..	15	..	..	678	..	..	678
Carlotta G. Cox	76	6	..	23	..	436	1,605	..	696	2,737
C. H. Tupper	99	6	..	24	..	308	967	..	542	1,817
Carmolito	99	6	..	23	..	174	705	..	..	879
										(seized)
C. D. Rand	51	2	6	6	12	28	..	..	..	28
Cape Beale	12	..	6	..	12	27	..	..	..	27
Dora Steward	94	8	..	25	..	..	224	..	673	897
E. B. Marvin	117	6	..	22	..	183	1,432	..	430	2,045
Enterprise	69	7	..	23	..	..	..	..	507	507
Favourite	80	2	12	6	24	..	450	..	202	652
Fawn	59	3	10	6	20	..	489	..	..	480
Geneva	93	7	..	26	..	270	420	..	600	1,290
Henrietta	31	2	5	4	10	44	108	..	..	152
										(seized)
Katharine	81	2	14	5	28	27	406	..	..	433
Kate	58	2	12	5	24	..	270	..	..	270
Lottie	19	2	2	4	4	..	..	..	.	(wrecked)
Laura	19	1	8	4	16	..	..	..	..	..
Labrador	25	4	..	11	..	50	225	..	..	275
Libbie	93	7	..	25	..	..	39	..	..	39
Maria	94	6	..	21	..	..	..	..	..	(seized)
Maggie Mac	71	6	..	23	..	..	..	..	..	(missing)
Minnie	10	2	..	8	..	5	..	..	..	5
..	49	2	10	4	20	..	500	..	..	500
Mascot	40	4	..	17	..	107	220	..	119	446
Maud S.	97	6	..	24	..	185	769	..	748	1,702
Mary Taylor	42	4	..	18	..	135	807	..	..	942
May Belle	58	2	10	5	20	149	145	..	230	524
Mischief (steamer)	48	2	10	5	20	26	635	..	..	661
Mary Ellen	63	3	14	5	28	35	507	..	304	846
Mermaid	73	6	..	19	..	..	164	..	238	402
Mountain Chief	23	1	6	4	12	..	..	137	..	137
										(seized)
Ocean Belle	83	6	..	20	..	128	687	..	646	1,461
Oscar and Hattie	81	6	..	23	..	25	186	..	261	472
										(seized)
Otter	86	2	8	7	16	..	263	..	..	263
Pioneer	66	5	..	20	..	100	329	..	..	429
Penelope	70	5	..	21	..	345	..	..	1,362	1,707
Rosie Olsen	59	1	10	6	20	..	..	..	..	(seized)
Sea Lion	50	5	..	19	..	472	629	..	833	1,934
Sapphire	124	2	16	7	32	..	970	..	..	970
Sadie Turpell	56	6	..	22	..	..	451	..	244	695
Teresa	65	6	..	23	..	83	306	..	176	565
Thistle (steamer)	147	6	..	15	..	79	..	..	4	83
Triumph	98	2	16	7	32	..	204	..	257	461
Umbrina	98	6	..	23	..	143	707	..	623	1,473
Viva	92	6	..	23	..	193	1,555	..	..	1,748
Venture	48	2	8	4	16	..	160	..	..	165
Victoria	65	6	..	22	..	23	..	..	558	581
W. P. Sayward	59	5	..	19	..	180	..	..	900	1,080
Walter A. Earle	68	6		22	..	100	1,225	..	341	1,866
Winifred	13	2	6	6	12	..	100	..	..	100
										(seized)
Wanderer	25	1	5	3	10	..	137	..	..	137
Walter L. Rich	76	5	..	19	..	..	102	..	204	385
Willie McGowan	115	7	..	23	..	..	93	..	..	93
										(seized)
Walter P. Hall	99	7	..	20	..	..	..	..	416	416
Indians	..	..	..	..	..	2,313	..	..	..	2,313
Total 65	4,583	272	251	953	500	6,892	24,448	137	14,805	46,282

Memorandum on the Catches made by Canadian Vessels in 1891 *and* 1892.

In 1891, 50 Canadian vessels secured 49,615 seals, an average of 992 per vessel;* while, in 1892, 65 vessels took 49,998 seals, an average of 769 per vessel. A direct comparison of these average catches would thus seem to indicate a decrease in the number of seals to be found at sea in 1892 as compared with 1891, but such a comparison cannot be fairly made.

In 1891, of 50 Canadian sealing-vessels, 44, or 88 per cent., entered the eastern part of Behring Sea.† In 1892 practically no sealing was done in that part of the Sea, and of the 65 sealing-vessels of that year but 31, or 48 per cent., crossed the Pacific to engage in sealing in Asiatic waters,‡ the remainder returning to Victoria about midsummer. This alone would make any general comparison of catches in the two years mentioned misleading, because affected by different circumstances. Even the vessels which crossed to the Asiatic side, after completing the season of "coast" sealing, lost much of the best of the sealing season in making the passage.

Under the different circumstances of the two years, the only comparison which can fairly be instituted is that referring to the "coast catch," *i.e.*, that portion of the catch taken along the North American coast to the south of the Aleutian Islands. Such a comparison shows that, in 1891, 50 Canadian vessels took, in this part of the sealing voyage, 20,727 seals,§ or an average of 414 per vessel; while, in 1892, the corresponding catch of 65 vessels was 31,340 skins,‖ an average of 482 per vessel, thus exceeding the average catch for the preceding year by 13 per cent.

This computation is based on the Table forwarded by Mr. Milne, and though in his Table no coast catch whatever is given for nine of the vessels, though some of them are known to have made coast catches, and several others, besides these, crossed to the Asiatic side with a part of their coast catch still on board,¶ the whole number of vessels have been included in striking the above average; had they been excluded, the figures for the average catch per vessel in 1892 would of course have been considerably larger. Collector of Customs at Victoria.

That an increased number of vessels should have made an increased average catch, while the sealers are unanimous in saying that the seals have grown more wary, appears to afford conclusive evidence that they have not at sea grown fewer in number.

It should be noted that the Asiatic catch of but one of the seized vessels ("Oscar and Hattie") has been included in Mr. Milne's statement, while the "Vancouver Belle" is not mentioned by him. This vessel had 1,300 skins on board at the time it was seized.**

UNITED STATES' Vessels delivering Skins at Victoria, British Columbia, in 1892 (to date).

Vessels.	Tons.	Boats.	Canoes.	Crew.		Catch.				
				Whites.	Indians.	Lower Coast.	Upper Coast.	Behring Sea.	Asia.	Total.
Anaconda	40	5	..	15	..	..	..	..	744	744
City of San Diego ..	46	5	..	18	..	98	468	..	..	566
Willard Ainsworth ..	40	5	..	15	..	..	400	..	480	880
Casco	73	2	..	9	..	1	..	..	..	1
Mattie T. Dyer ..	103	4	..	13	..	..	1,190	..	..	1,190
Total 70	302	21	..	70	..	99	2,058	..	1,224	3,381

Catch of Canadian vessels delivered at Victoria ..	..	..	..	..	..	..	..	..	46,362
,, United States' vessels delivered at Victoria ..	..	..	..	..	..	..	..	..	3,381
Lower Coast catch ..	..	..	..	..	..	..	..	..	6,892
Upper ,, ..	..	..	..	..	..	..	..	..	24,448
Behring Sea ,, ..	..	..	..	..	..	..	..	..	137
Asiatic side ,, ..	..	..	..	..	..	..	..	..	14,805
Skins on seized vessels, not included in above statement						..	..	..	3,706
Canadian total, Victoria, British Columbia ..	..	..	..	..	..	..	..	..	49,988
United States' ditto, ditto ..	..	..	..	..	..	..	..	..	3,381
Grand total ..	..	..	..	..	..	..	..	..	53,379

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* British Commissioners' Report, Appendix, p. 205.
† British Commissioners' Report, Appendix, p. 205.
‡ British Commissioners' Supplementary Report, Appendix, p. 66.
§ British Commissioners' Report, Appendix, p. 205.
‖ British Commissioners' Supplementary Report, Appendix, p. 66.
¶ Ibid., p. 66.
** United States' Counter-Case, Appendix, p. 407.

Vessels seized during Season 1892.

1. "Ariel," of Victoria, British Columbia, schooner:
Seized on the 28th July, 1892, 40 miles south-east of Copper Island, by the Russian cruizer "Zabiaka;" had 207 seal-skins on board.

2. "Carmolite," of Liverpool, Nova Scotia, schooner:
Seized on the 26th August, 1892, 25 miles eastward of Copper Island, by Russian cruizer; reported to have on board 630 seal-skins.

3. "Henrietta," of Victoria, British Columbia, schooner:
Seized in Behring Sea with 460 seal-skins on board; sent to Sitka, Alaska, charged with transferring skins in Alaskan waters.

4. "Maria," of Maitland, Nova Scotia, schooner:
Seized on the 21st August, 1892, by "Kotick," near Copper Island; had 600 seal-skins on board.

5. "Mountain Chief," of Victoria, British Columbia, schooner:
Seized on the 29th July, 1892, by United States' steamer "Adams," in Behring Sea, with 137 seal-skins; sent to Victoria, British Columbia.

6. "Oscar and Hattie," of Victoria, British Columbia, schooner:
Seized near Attu Island; had 276 seal-skins on board; sent to Victoria, British Columbia; arrived on the 1st October, 1892.

7. "Rosie Olsen," of Victoria, British Columbia, schooner:
Seized on the 24th July, 1892, about 40 miles from Copper Island, by "Kotick;" had 377 seal-skins on board; released and sent with crews to Vancouver, British Columbia, in charge of Captain Copp.

8. "Willie McGowan," of North Sydney, Nova Scotia, schooner:
Seized on the 18th July, 1892, about 40 miles from Copper Island, by "Zabiaka;" had eighty-six seal-skins on board.

9. "Vancouver Belle," of Vancouver, British Columbia, schooner:
Seized near Copper Island [1,300 skins on board].

10. "Winifred," of Victoria, British Columbia, schooner:
Seized on the 20th July, 1892, with forty-six seal-skins; sent to Sitka under charge of transferring cargo in Alaskan waters.

Vessels Wrecked and Missing during Season 1892.

1. Canadian schooner "Lottie," wrecked off Columbia bar; crew lost; washed on shore.

2. Canadian schooner "Laura," wrecked off Nootka Sound, Vancouver Island, British Columbia, 25th January, 1892.

3. Canadian schooner "Maggie Mac," missing; not seen since March 1892.

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